

Our computer keeps you up to date...

If you're buying by mail, the last thing you want is a hand-written scrawl trying to tell you the goods are out of stock. Or that you paid too much. Or that there will be a delay while who knows?

That's what you get from a lot of the amateur Mail Order firms. And worse.

At DSXpress, on the other hand, EVERYTHING is handled by our IBM System 38 computer. It keeps a record of your order. Your payment. The despatch of your goods. The method of despatch. The items automatically back-ordered. And any credits or monies owing.

What's more, this information is fully itemised on the invoice that accompanies your goods. No scraps of illegible gibberish. No credit notes to get lost. No waiting weeks for packing slips'. It's all there in front of you.

If you want to play mail-order roulette, deal with the amateur mail order companies.

If you want service, satisfaction and security - trust DSXpress.



17 years reliable service to the hobbyists and enthusiasts of Australia

Dear Enthusiast,

In your hand is the biggest, brightest and best Dick Smith Electronics catalogue ever. Well over three thousand products (including 500 plus new ones!) with something for everyone. But it's you, the hobbyists and enthusiasts, that we strive hardest to look after - better than any other electronics supplier in Australia.

From the many letters that you send us, we believe that 99% of the time, we succeed. Thanks for your continued support: this year we'll try to make it 100% of the time.

You've probably noticed that there's a different person on this page from last year! No, Ike Bain hasn't left Dick Smith Electronics. He's gone across to California to start Dick Smith Electronics USA, Inc. Some may think that's carrying coals to Newcastle: we're convinced that there will be huge benefits for us - and you - in having an offshoot in the USA.

Ike continues to be a director of DSE, Australia, and will be calling back here three or four times a year to keep us firing on all cylinders!

I'm sure you'll join with us in wishing Ike and his team every success.

Speaking of success, 1984 was exactly that for Dick Smith Electronics and 1985 is looking great!! We've been able to expand our retail stores (even closer to you!) and our head office services. Staff training, quality control, better support (particularly high-tech products) and better warranty & general service are just some of the areas we've paid particular attention to.

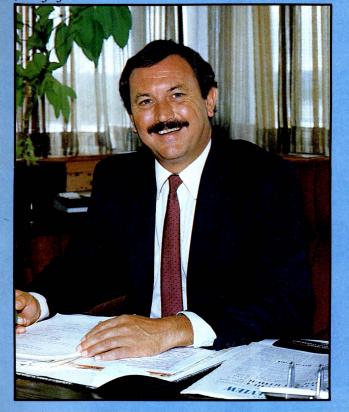
We hope that you'll notice the difference.

Le Cluba

Don't forget, if you have any ideas or suggestions (or even complaints) about our services, products, etc, I'd like to hear from you. You can write to me c/- any Dick Smith Electronics store.

With regards,

Mike Wilson Managing Director



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Data Data

PLEASE NOTE: This catalogue is valid for the períod April 1985 to March 1986. During the life of this catalogue, however, currency fluctuations, Government policies and other causes beyond our control may force price changes, product differences, etc. Please enquire at your nearest Dick Smith Electronics store for latest prices and information.

Dick Smith Electronics:

A year of expansion for Dick Smith Electronics: with big benefits for you!

As our Managing Director mentioned, Ike Bain and his team from Australia have now opened the First Dick Smith Electronics store in the home of electronics: Silicon Valley, USA!

This in addition to another six stores in New Zealand and the dozen or so we've opened here in Australia since our last catalogue.

Our US operation will have immediate benefits for the hobbyists of Australia. Like us, you've probably seen those adverts in US magazines full of interesting bits and pieces: the type of goodies we never get to see in Australia . .

Now we'll get to see them! As well as a retail operation in its own right, our US division is acting as a buying office for Dick Smith Electronics in Australia and New Zealand. Because they're right on the spot, they'll be able to grab some of the bargains for us – and for you!

And because of the huge number of Dick Smith Electronics stores we need huge quantities of stock. This gives us incredible buying power - and lower prices for you.

You reap the benefit!

In the meantime, back here in Australia, we've been making it even easier and better for you to shop at Dick Smith Electronics.

First of all, over 500 new lines. Right through the range, from components to computers. And we've up-graded many existing lnes, too.

For our DSXpress customers out the back of Woop Woop (or even further!) we've introduced a toll-free order line: ring us for the cost of a local call from anywhere in Australia. And we'll have your order on its way within 24 hours.

For our retail customers, we not only have all the new stores - we're opening them closer to you.

For the real experimenters, we have satellite TV earth stations! This very latest technical innovation is proving incredibly popular in remote areas, too: TV for the very first time!

For the amateur operator, we've greatly expanded our range of quality Yaesu amateur equipment. And there's more in CB and marine radio too!







you've picked up, don't be frightened by the 'high tech' products. Instead, try your hand at building some of the simple kits (Fun Way Into Electronics is a great place to start!)

know that the Dick Smith Electronics catalogue is the one place to find not only everything in electronics, it's also the place to find valuable data. It's included free, with our compliments.

Incidentally, while this catalogue was in production, the Australian dollar was receiving a battering - with the result that all imported goods

This catalogue reflects those price rises . . .and there is no certainty that it's over yet. You can be assured, however, that when the dollar rate improves, Dick Smith Electronics will pass the savings on to you.



(1) Bro Vin Hawley of St Edmund's School for the Blind: DSE's 'Computer Ecucator of the Year', accepting his award from Hon Neville Wran, Premier of NSW.

(2) Our Service Centre is one area major improvements have been made during the past 12 months.

(3) Mike Wilson launching the 1985 Dick Smith Rally '85 Championship. DSE is the major sponsor for this series.



(4) Former Managing Director of DSE, Ike Bain, now President of Dick Smith

expanding world wide



Australian Store Locations

NSW
Cnr. Swift & Young Sts.
T55 Terrace Level
Shop 1, 65-75 Main St
613 Princess Hwy
Oxford & Adelaide Sts
531 Pittwater Rd
Campbelltown Mall, Queen St
Shop 235, Archer St Entrance
147 Hume Hwy
162 Pacific Hwy
315 Mann St
4 Florence St
Elizabeth Dr & Bathurst St
450 High St
173 Maitland Rd, Tighes Hill
Lane Cove & Waterloo Rds
George & Smith Sts
The Gateway, High & Henry Sts
818 George St
6 Bridge St 125 York St
Cnr Kable Ave & Brisbane St
263 Keira St
ACT
96 Gladstone St
VIC
Creswick Rd & Webster St
145 McCrae St
Shop 46, Box Hill Central, Main St
Cnr Hawthorn Rd & Nepean Hwy
260 Sydney Rd
1150 Mt Alexander Rd
Nepean Hwy & Ross Smith Ave
205 Melbourne Rd
291-293 Elizabeth St
Bridge Rd & The Boulevarde
Springvale & Dandenong Rds
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Albury Bankstown Sq. Blacktown Blacktown Blookvale Campbelltown Chatswood Chase Chullora Gore Hill Gosford Hornsby Liverpool Maitland Newcastle North Ryde Parramatta Penrith Railway Sq Sydney	(02) 70: (02) 67: (02) 64: (02) 38: (02) 9: (046) 2: (02) 64: (02) 64: (02) 47: (02) 60: (049) 3: (049) 3: (049) 3: (049) 3: (049) 4: (049) 4	1 8399 7 4888 1 7 7744 7 1444 3 0441 7 1 1955 2 8922 9 5311 1 1955 7 6633 0 9888 3 7866 8 3855 7 6633 0 9888 2 1 3777 7 5051 7 7 5051
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Ballarat Bendigo Box Hill East Brighton Coburg Essendon Frankston Geelong Melbourne Richmond Springvale	(054) 4; (03) 890 (03) 592 (03) 383 (03) 379 (03) 783 (052) 78 (03) 65 (03) 428	1 5433 3 0388 0 0699 2 2366 3 4455 9 7444 3 9144 8 6766 7 9834 8 1614 7 0522

QLD 293 Adelaide St 166 Logan Rd Gympie & Hamilton Rds Cnr Queen Elizabeth Dr & Bernard St Cnr Gold Coast Hwy & Welch St Bowen & Ruthven Sts Ingham Rd & Cowley St. West End SA	Southport Toowoomba	(07) 229 9377 (07) 391 6233 (07) 359 6255 (079) 27 9644 (075) 32 9863 (076) 38 4300 (077) 72 5722
Wright & Market Sts Main South & Flagstaff Rds Main North Rd & Darlington St 24 Park Terrace	Adelaide Darlington Enfield Salisbury	(08) 212 1962 (08) 298 8977 (08) 260 6088 (08) 281 1593
WA Wharf St & Albany Hwy 66 Adelaide St William St & Robinson Ave Centreway Acde, Hay St TAS	Cannington Fremantle North Perth Perth City	(09) 451 8666 (09) 335 9733 (09) 328 6944 (09) 321 4357
25 Barrack St	Hobart	(002) 31 0800
NT 17 Stuart Hwy	Stuart Park	(089) 81 1977
		1

New Zealand Store Locations

98 Carlton Gore Rd	Newmarket	(09) 54 7744
1795 Great North Rd	Avondale	(09) 88 6696
26 East Tamaki Rd	Papatoetoe	(09) 278 2355
For & Commerce Sts	Auckland	(071 38 9974
450 Anglesea St	Hamilton	(071) 39 4490
154 Featherston St	Wellington	(04) 73 9858
Victoria St & Bealey Ave	Christchurch	(03) 504 405
Manse & Commerce Sts	Dunedin	(024) 74 1096

United States Store Location

390 Convention Way Redwood City, Cal. 368 8844



RECEIVING SYSTEM

THE SATELLITE RECEIVING ANTENNA or 'Dish'

The technology of tomorrow has arrived: home satellite TV! Right now, here in Australia, people are watching programs from space. And more are joining them all the time.

The programs they are watching are many and varied. Most choose to watch the signals from Intelsat IVA, in orbit over the Pacific Ocean. On this 'bird' are feeds for American Armed Forces Radio & TV Service (AFRTS), Australian ABC, Channel 7 and Channel 9 network news feeds from America, etc. In addition, many people watch programs beamed from the Indonesian 'Palapa' system; the Russian 'Gorizont' system and, at times, others

It is anticipated that many more satellites will be watchable in the future from many parts of Australia.

Reception varies from excellent to watchable depending on location and equipment: with the system on these pages, more than adequate results have been obtained at our Sydney headquarters, and our test site near Gosford, NSW.

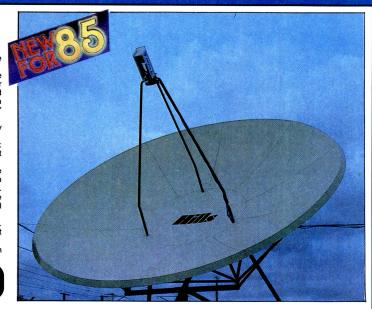
While it is expected that the ABC feeds and possibly the 7 & 9 network feeds will be switched to Aussat when it is launched, the Dick Smith Electronics Satlink System will be suitable for all future Intelsat satellites, as well as Palapa and Gorizont, etc. The dish is one of the most important parts of the system. It can make the difference between a picture and . . . We have chosen this Australian made dish after a great deal of research and investigation into different brands and types.

We chose a 3.5 metre model as the best compromise between room and performance It is made of fibreglass petals both for minimum weight and for best surface accuracy. It has a gain of 41dB.

It is designed for ground mounting (making erection much, much easier!) with adjustments for azimuth and elevation. Special

instructions have been written by our

research and development staff to allow even the beginner to put this dish up and aim it properly.





There's a lot to read about in this fascinating new world of Satellite TV. Whether you're interested in watching commercial satellite TV, or even amateur satellite TV, these books make fascinating reading.

The Satellite Experimenter's Handbook by Martin R. Davidoff

All you need to know to communicate with the heavens. This one book tells all that's necessary to pick up signals from orbiting satellites. Whether your interests be in Amateur Radio, weather or TVbroadcast spacecraft, you'll find what you need to know! Give it a go! Cat B-2235

Complete Guide to

Satellite TV by Martin Clifford

- 250 pages. If you've ever tried to find information on TVRO reception - details on siting and installing TVRO base stations or specifications on satellite orbit - uplinks and downlinks - you've probably ended-up down yourself. Well finally someone has come up with a single publication which covers everything on Satellite TV. Your shelf would be lonely without it. Cat B-1841

Home Satellite TV

Home Satellite Television by Rick Cook & Frank Vaughan 326 pages. Can YOU set up a personal Earth station? Is it a practical alternative - what about costs? The answer to these and many other questions you may have about Home Satellite TV are contained in this new state-of-the-art sourcebook. If you're thinking about your own station or just curious this one has the answers. Cat B-1840

The World of Satellite TV

Long and Keating - 224 pages

What an amazing book! Covers just about everything you'd ever need to know about satellite TV: the satellites, the equipment, the programming - even the installation and legal questions! And the appendices and lists contain almost as much info as the book itself. We've only just found this book - just in time for satellite TV! Cat B-1842 340 Satellite Receiver



Because conditions in Australia for receiving satellite TV are not exactly optimal (in fact many books say it's impossible - we proved them wrong!) you need a special receiver. We took a proven commercial design and modified it with our exclusive PLL threshold extension circuitry (to lock onto low level signals). We 've also crystal locked the audio and modified the bandwidth circuitry to give improved signal to noise ratio: provided continuous transponder tuning with a fine tuning control and 'S' meter to assist. Output is standard composite video of the type being received from the satellite (eg NTSC from USA, PAL from ustralia, etc). Cat D-8100



LOW NOISE

Often regarded as the 'heart' of a satellite TV system. If you don't have a very low noise amplifier, you won't get a decent picture. The LNA we've chosen for the Satlink System is the MSE LA-3800 made in the USA to exacting standards to give the best possible performance. It is specifically made to cover the 4GHz 'C' band used by Intelsat IVA, V, etc. The LNA has a 40 dB gain,

Audio:

70 MHz input level -35 to -5dBm bandwidth 12MHz Threshold: less than 6dB C/N
Video: De-emphasis is 625 line PAL
Output 1V P-P adjustable

Output impedance 75 ohms Switchable output polarity 40dB energy dispersion removal Subcarrier 5.4 to 8.0 MHz (tunable) (Crystal preset 6.8MHz): 75 microsecond de-emphasis 600 ohm unbal, output impedance

-5dBm nominal output level DOWNCONVERTER-

nput frequency range:3.7-4.2GHz -30 to -50dBm at Input level: 50 ohms

Noise Figure: Image Rejection: IF output: 15dB nominal 18dB nominal 70 MHz, 75 ohms

15 to 18V DC Supply Voltage:

and a 55 degree Kelvin noise temperature. Many LNA's you'll see around cannot hope to match this. And they won't give a worthwhile result, either.

Noise figure (at 26 C): 50 to 55 degrees K Frequency Range: 3.7 to 4.2GHz 37dB min, 40dB

14 to 23 volts at 60mA

RF input waveguide: CPR 229G flange Female 'N' connector 400 grams



CHAPPARAL FEED HORN

The feed horn is also an essential part of the system, being replaced at the focal point of the receiving dish. It acts as a 'collector' of signal ready for processing by the Low Noise Amplifier. Obviously the feed horn must be manufactured to incredibly tight tolerances to perform properly. The feed horn chosen for Satlink System is the famous Chapparal Super Feed, regarded in the United States as the industry standard

Polarisation correction is fitted to allow reception signals from the Intelsat satellites. Cat D-8200

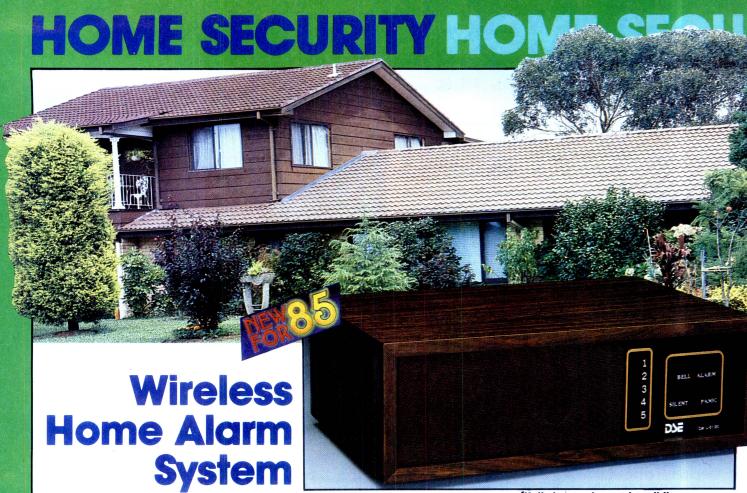


NTSC MONITOR

Most US signals currently transmitted from satellites are in NTSC (the US system). Because the receiver processes the signal in whatever format it ceives, you will require an NTSC receiver or monitor to watch it! Until now, NTSC monitors have not exactly been easy to get in Australia!

Our RGB computer monitor includes provision for NTSC video input, so

ideal for use in the Satlink System. And when you're not watching satellite TV, the monitor is among the best you'll find for computer use (RGB only!) Cat X-1193



No wiring needed easy to install!

Now you can have the versatility of five separate zones of protection in a home alarm system! Installed in next to no time – WITHOUT wiring! The central processor allows you to hook up to five different zones to protect your home or yourself (with the personal remote control).

All that needs to be done is to connect your central processor to the power source, set the code on your remote devices and the system is operating. Your Dick Smith central processor features: Four function modes (bell, alarm, panic, silent). Five processing zones. Instant/delay switch. Visual &/or aural indication. Bell or alarm aural response. 32 wireless system codes. Has provision for external siren speaker, and normally closed trigger output. Operates from 16V AC with 12V DC backup. This is an ideal system for home units and flats or anywhere wiring is difficult to conceal. Which is probably just about everywhere! The central processor is compact and attractive and can be easily installed on bookshelf or concealed in the cupboard or drawer. It's great value for a system that can be easily packed up and moved with you.

- Eliminates hours of work
- Ideal for holiday homes
- Take it with you!
- Expandable to meet your needs

Rechargeable Back-up Battery
Made to directly fit internally in the
control processor unit.
12V @ 1.2AH. Cat S-3315 \$2250

Whole System (Unit shown above plus all three devices shown below)

Because every home/office/factory etc is different, we offer this unique alarm in two forms. The whole Central Processor unit shown above. plus remote reed switch units and remote infrared sensors, as shown below. To this, you can add more of the individual units shown below as you require to complete the system to your specifications. Comes complete with AC power supply. Cat L-5120

DOC Approval No 243011

Separate Optional Devices



Remote reed switch

A magnetic switch and digital coding transmitter to use in conjunction with your Central Processor. The primary function of the switch is to protect entries and exits. When the magnetic connection is broken the transmitter relays the information to the processor which sounds the alarm.

Cat L-5126

Has N.C. contact system — other similar switches can be added in series to protect more than one point.



Infra red sensor

The latest advance in intruder detection technology. Detects rapid changes in body temperature and transmits the signal to the central processor. Harmless to humans and animals. Each unit covers 64sq. metres. And there are fewer false alarms! Features adjustable control zone window for precise detection.

Personal Remote Control

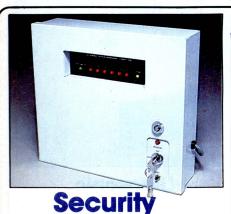
This hand held transmitter is used to remotely control your Central Processor. Select the operating mode or use the panic button for emergency calls. Perfect control at the push of a button without having to raise yourself from your chair. Cat L-5124



A personal aid for the Handicapped

TY HOME SECURITY HOME SEC

Control Units



This is the type of alarm system the professional installers charge you \$500-\$1000 for ... and more!

This is it! The most professional alarm system we've ever seen - and it's suitable for homes, offices, factories ... you name it! With six individual sectors all fully controllable for instant or delayed alarm, each able to isolate and each triggerable by a huge range of sensors: the type of alarm used by banks, etc. where security is paramount. paramount.

Imagine how it would protect your home!
Housed in a heavy steel case with inbuilt tamper protection, complete with mains power supply and provision for back-up battery, this alarm features the latest 'wire-out' proof sensor circuits for optimum protection. A security key operates both the alarm itself and the alarm case. eatures:

● Resistive loop sensing suits both n/o & n/c

nepsure roop sensing suits both n/o & n/c alarm sensors. Bridging out or cutting sensors will trigger alarm.

Any sector can be isolated while the rest of the alarm remains on: eg watch TV in one section of house while the rest is protected!

protected!
Six different sectors, all with LED indication to show sector status.
Includes fire detector provision.
Suits most types of detection devices: reed switches, motion detectors, foil tape, panic buttons, glass breakage detectors, strain detectors, etc.
Comprehensive manual supplied: by following this carefully, most handymen should be able to install one of these amazing systems!

Cat L-5100

HOW TO USE THESE CONTROL UNITS

Your alarm system can be simple or as complex as you wish to make it. All you do is add the necessary alarm sensing devices to protect the areas of interest.

Sensing devices fall broadly into two categories, 'normally open'(NO) and 'normally closed'(NC). These refer to the state of the device when no entry is being detected. On a detection, this device switches to the opposite category (eg. a NO device closes, and a NC device opens).

Normally open devices are such things as pressure mats, heat switches, panic buttons, etc. which are connected to the alarm's 'instant' NO terminals.

Normally closed devices are such things as magnetic reed switches, window tape, key switches, etc.



2+2 Sector **Push Button** Code Controller

Deluxe push-button alarm controller offering the very latest in security-including a four digit code as used in major security installations.

With 2 protection zones and a 24 hour fire/emergency sector plus normal entry/exit sector, this system gives

you, effectively, four zones of protection.

Attractive, tamper proof plastic case is housed on a heavy gauge steel frame for protection: it's made to look good as well as perform. The keypad gives you complete control and LED indicators show sector status. Controlling your system with a code has big advantages: (a) you can change the code at any time. (b) you don't have a key to lose, and (c) the code can be shared by several authorised users (great for commercial operation!)

Comes complete with a comprehensive instruction manual for fully professional quality results

- Two separately switched zones of control
- ★ Both normally open & normally closed inputs.
- Entry/exit delay times adjustable from 5-125 seconds
- ★ Bell times adjustable
- **Tamperproof**
- ★ 12 Volt operation.

Cat L-5140



Ultrasonic Alarm

The 'Claytons' alarm: the ideal alarm for those who don't want to put in alarms! This one is fully selfcontained, including siren speaker. Just place it on the shelf and its invisible ultrasonic rays detect movement. Fantastic for single room protection; can also be used as a sensor on a master alarm console.

Includes sensitivity control, operates from external 12V battery, from mains via optional plug-pack with internal battery back-up. Has provision for external speaker, sensors etc.

Cat L-5108



'Bookshelf' Alarm Module

A great alarm system for the home, flat, etc -because it doesn't look like an alarm! So anyone entering your property could easily be fooled into thinking this was a small speaker - until they were caught! This module has another big advantage too - apart from the sensors, it's fully self-contained. While there is provision for an external horn speaker, it has its own speaker, built in, hidden behind the 'speaker grille' front nane!

- Unit switches off siren after five minutes to comply with Australian noise pollution
- laws.

 AC/DC operation: optional AC adaptor can be fitted to use mains: unit automatically switches back to battery if mains is interrupted.

 Built-in test LED for checking that the
- system is working before you leave.

 Built-in remote switch terminals, allows for the installation of a switch that controls the alarm module from wherever you wish: great for the elderly, infirm, or nervous people!

Cat L-5102

2 sector controllers

Cat L-5055



The 2 sector alarm control module for the professional system you can afford! Featuring both normally open and normally closed inputs it will suit all normal detection devices. 12V AC/DC operation with LED sector indicators. Both delay and instant zone inputs. Adjustable entry, exit and alarm periods. A great price for the heart of your protection system.



Economy Control Module

The lowest price alarm module around - but it features pro quality circuitry and facilities. Both n/o and n/c inputs, suits all normal detection devices and has one minute alarm period. 12V DC operated - use batteries or mains plug-pack as required.

Cat L-5060

AMATEUR RA EUR RADIO

Go anywhere ... with the fantastic

FT-290R

Can't decide on a hand held or mobile 2m rig? Get both! The brilliant FT-290 is built to go where you go, with provision for internal batteries (standard or nicad) or external 12V from your car or base supply. It comes complete with ¼wave whip antenna-or you can plug in an exter-nal whip or beam. And what's more, the FT-290 operates in all modes, (not AM) so whatever your interest on 2 metres, the 290 can handle it! 10 memories with memory recall and full band scanning, memory back-up, etc etc. It's by far our most popular 2m transceiver. And small wonder!

Specifications:
Freq coverage: 144-148Mhz in programmable steps
Power output: 2.5/0.5W at 12V, CW/FM/SSB Sensitivity: SSB/CW 0.5uV for 20dB S/N, 0.25uV for 12dB SINAD Power: 8.5-12.5V DC

Cat D-2885



(Takes 8 x 'C' size NiCads Cat S-3301 p.126)

YM-49 Speaker Mic

Great for mobile use where road traffic noise makes difficult hearing. Made just to suit the FT-290.

\$4250

Carry Case

Protect your 290 while hoofing it! Avoid scratches & damage. Cat D-2910

YAESU

Mobile Bracket

Super convenient - allows you to instantly connect the 290 for mobile use to both power and antenna. Great security feature - take the set with you when you leave the car. Cat D-2911

Flexi Antenna

The 5/8 whip is great - but if you're out and about you could damage or break it. Flexible rubber antenna fits into antenna hole thread, near indestructible.

Cat D-2912

MH-12A2B Speaker Mic



Economy 2m hand-held

Yaesu's new compact & lightweight handy for the amateur who doesn't need all the frills: the brilliant new FT-203. Thumbwheel frequency switching makes for quick and easy channel selection - so no memories are required. But the FT-203 still packs a handy 2.5W **output**: more than enough for average simplex epeater (inbuilt +/- 600kHz repeater split) usage. And for mobile use the FT-203 has a nohands VOX system when used with the optional YH-2 headset. Safe driving - and more enjoyable QSO's.

Cat D-3500

- 450mAh battery included
- 144-148Mhz frequency range
- 144-148Mhz frequency range
 5W input for 2.5W output (F3)
 Tiny size 65 x 34 x 153mm and only 450g including battery!

Double conversion superhet receiver, 0.25uV (12dB) sensitivity

Earphone/Microphone **Headsets**

Designed for the FT203, 209, 703 & 709 hand-helds. Allows greater flexibility (eg vehicle operation) with both mic and speaker in one unit. 3.5/2.5mm plugs.—Cat C-1112

operation with FT203, 209, 703 & 709. YH-1 suits switch boxes (below) for manual PTT. Suits most recent Yaesu transceivers, may also work with other brands.

YH-2 Cat C-4200 Both one price: \$3250



Push-to-talk Switches

For use with YH-1 headset (see above) for better communication – especially mobile! Two-way switch with locking tx one way, PTT other. With LED indicator. SB-1: Suits FT-208, FT708 & other ultra-mini 6 pin microphone sockets. Cat D-3510
SB-2: Suits FT-230, FT-290, FT-690, etc with larger 7 pin microphone sockets. Cat D-3512

Both one price: \$3495



HAND HELD NICADS, CHARGERS etc. FBA-5 Battery Holder

Holds 6 AA cells in standard slide-on battery pack for the FT-203, 209, 703 and 709 hand-helds. Gives 9V DC when using standard cells, 7.2V when using NiCads. Cat D-3504 \$4 295

FNB-3 10.8V/425mAh NiCad.

Similar package to above, but containing a 10.8 volt NiCad Battery. Includes provision for charging without removal from hand-held. Instant removal & connection. Cat D-3506 § 79

FNB-4 12V/500mAh NiCad.

Slightly larger to above pack, gives full 12 volts for when highest power is essential (up to 5W out on the FT-209RH!) Also includes charging provision. \$89 Cat D-3507

PA-3 Car Charger

intended for operating 10.8 volt transceivers from a car cigar lighter socket. Includes charging as well as power. Suits FNB-3 pack as well as older (FT-208 etc) style transceivers.

NC-15 Quick Charger

Cradle-type charger/supply offering fast charging of either FNB-3 or FNB-4 NiCads (around 2-3 hours) with automatic charge sensing. Also doubles as handy base supply.

NC-9C Nicad Charger

Plug-pack type charger for FNB-3 or FNB-4 NiCads, ideal for charging battery while set is in use. Cat D-Cat D-3514 \$2950



Any of our stores will be glad to discuss easy term payments (to finance company approved applicants).



ME SECURITY HOME SECU

Alarm outputs



Reflex Horn

Large 127 x 200mm rectangular horn with huge 15 watts rating. Complete with mounting bracket, ideal for hanging under eaves etc for maximum sound dispersion.

Use in conjunction with any alarm controller offering 'speaker' output (ie any alarm controller with inbuilt siren oscillator). Alternatively use with our L-5115 electronic siren driver when operated from an alarm 'relay' output. 8 ohms impedance. Cat C-2718



Flashing Strobe

. and a beauty! A bright blue flashing 'strobe' lamp (like on the top of you-know-what cars!) which demands absolute attention.

Placed outside the property (say under the eaves of the house) it will instantly show neighbours, Police, etc where the alarm is occurring (it's not always easy to tell from which direction a siren or bell is comina!)

Operates from 12 volts: use in conjunction with virtually any alarm controller via relay output.

BONUS: We now include a free data sheet showing how to add a 'latching' circuit to the strobe; this keeps the lamp flashing after the alarm siren, etc has stopped sounding. Very handy when you come home late at night: you're instantly warned that an alarm has occured - some thing is wrong - proceed with caution!
Cat L-6000

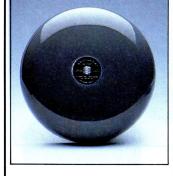
\$2850



Horn Speaker

Smaller version of C-2718 speaker, designed for use inside a horn speaker cover for maximum security installations. Plastic body means all-weather (under shelter!) operation and horn construction means incredibly high output compared to conventional speakers.

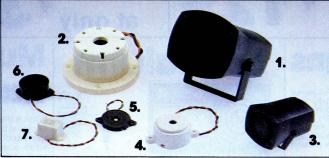
8 ohms impedance, 10 watts rating. As above, use with speaker output on alarm or optional siren driver. Cat C-2705



Fire Bell

Give em the gong! Fantastic noise-maker, used in conjunction with alarm 'relay' outputs. 8 inch (205mm) bell, with a massive gonger inside dome (where it's harder to disable!)

Operates from any 12 volt supply (draws 300mA) - most alarm supplies are more than capable of supplying this. Try standing next to this one! Cat L-5280



Local Audio Alarms

1. Large Piezo Electronic

Ideal for car, home, van alarms: this compact unit makes a very loud, piercing sound when activated. Easily fitted, operates from 12V DC @ 500mA. 110dB output at 1m. Cat L-7030

\$**24**95

2. Piezo Electronic Alarm

Earsplitting siren alarm suitable for most installations. Working voltage 7.5 - 15 (200mA at 12V). Sound output 110dB at 1M. Frequency 2800Hz. Cat L-7025

3. Micro-Piezo Alarm

Amazingly compact! Suitable for cars, bikes vans - or very loud local alarms. Simple installation. 12 volts operated at 120 - 240mA. Output 110dB at 1m. Cat L-7029

\$ 4 495

4. Two-tone Piezo

Emits a high pitched warbling sound when activated: very attention getting! And its only 38 x 22mm! 9 - 16 volts operation.

\$550

5. Piezo Transducer

Sound transducer driven by 3 - 30V p-p AC signal around 40kHz (eg TTL, CMOS, etc) Sound output typically 80dB min. 5mm thick, 30mm diameter. **\$ 4** 25 Cat 1-7022

6. Slim Piezo Alarm

Similar to above, but has inbuilt driver circuit so operates from 3-30V DC (current 2.5 19mA). Output 90dB min, around 3.6kHz. 14mm thick. Cat L-7024 **\$3**45

7. Electronic Buzzer

Works between 4 and 15V DC. Diode protected, 70dB @ 1m output. Has low operating current and is ideal as local alarm or warning buzzer. Cat L-7009



Siren Speaker

A great alternative when your alarm hasn't got a siren output. The siren driver is actually built into the back of the speaker. So you only need to connect power (eg via the alarm's relay output) to give an ear-splitting, penetrating wail that can be heard for blocks!

It's ideal for use in cars, boats, trucks and vans, too. Mounting bracket and con-necting cable supplied. Top value! Cat L-7026

Timer Module

neat unit that can be added to an existing system to give an adjustable automatic turn-off. (Comply with noise pollution laws!) Features an indicator light to show alarm has been triggered even after turn-off. Control bells, sirens

Cat L-5110 SECO-LARM BELL/SIREN TIMER

Siren Drivei

Turns any horn speaker into a siren! Will deliver an ear-splitting 103dB @ 1m wail from a 12V supply (when used with C-2705 horn speaker). Use in conjunction with any control unit if it doesn't have siren output. Cat L-5115



OME SECURITY HOME SECU



Appliance Alarm

stereo, your TV... anything! Just plug them into this alarm: and if some light-fingered Louie tries to lift your loot, look out! The alarm soon suggests he change his mind!

What's more, the control unit is ideal for adding any standard sensors to: making it the heart of a complete home security system.

And what happens if he's a smart alec and turns off the power first? No worries: The alarm gets him anyway!

- Handles up to 4 appliances (standard 3 pin outlets, up to 10A total)
- Provision for external siren, external key, external power
- Panic switch built in: just in case!
- Security key operated pulling out the plug won't stop it! Cat L-5165





guard, area supervision, child minding, personnel checking, etc, etc. And it just plugs into any B&W (or colour!) TV set. Don't pay \$1000plus for a CCTV camera: this one is really great value and it's all you need for security work.

- 2/3 inch separate mesh vidicon Tube for high quality • 7MHz video bandwidth, 550 lines horizontal resolution.
- Wide light range: 10,000:1 range with auto light control. Switchable RF/Video control (output on Aust. Channel
- High quality 16mm/f1.8 lens with standard C mount.

Ideal for monitoring swimming pools

amateur TV, schools & colleges, etc. Cat Y-1195

Warning Signs

Tell the intruder that he (or shel) isn't welcome. Tell them if they try anything they're likely to be caught by your 'constant electronic surveillance' - even if you don't have a burglar alarm fitted! (how are they to know???) We have either a self-adhesive vinyl sticker for your windows, or a large aluminium sign for the wall, gate, fenne et. Both are a brilliant red it buy cont the miscell

fence, etc. Both are a brilliant red: they can't be missed!

Window Sticker Cat L-5311



With inside adhesive (sticks to inside of glass) for all your vindows and glass doors. Size 130 x 60mm. Cat L-5311

> **Aluminium** Sign Cat L-5312



245 x 170mm heavy duty sign, ready to warn them away in no uncertain terms. 22 gauge aluminium, screen printed in bright fire-engine red. Suitable for screwing to wall, fastening to fence, etc Cat L-5312

Lockalarm



Another idea that's so simple - yet so effective! Combines the features of a security chain and alarm: put the chain on the door to stop entry - if the door is pushed or forced, the alarm sounds!

Fully self contained (battery operated) so it's ideal for flats, units, etc where alarm installation might prove difficult or impossible.

And it can be set from outside with keys. So you can have protection when you're at home - or when vou're out. Cat L-5155

Mugging Rape Al

What a great idea! Real personal protection with this handbag or pocket sized alarm. Incredibly loud siren to scare attackers away; also includes inbuilt torch and 'door open' warning (great for hotel/motel rooms). Cat L-5150



ant CARALARMS? You'll find them on page 54!

HOME SECURIT







The simplest security device of the lot

Arlec Automatic Light

Just imagine: a prowler creeps up in the dead of night. Perhaps you're home, perhaps not. Suddenly the lights come on!

Or even less dramatic: you return home and walk towards the front door in the dark. You used to trip over the kid's bikes & rollerskates. But now, as you approach the house, the front light comes on to show the way. You have been 'sensed': without lifting a finger the lights have come on: automatically!

That's the Arlec Automatic Light. With dozens of applications around the home, office, factory . . . both in security and in normal use. They say that the most effective ideas are often the simplest: this is one of them.

The Arlec Automatic Light works in much the same way as an alarm movement sensor. Instead of triggering an alarm, it turns on a light! Anything that comes into its zone of protection will trigger it.

No electrical knowledge needed to install: it simply replaces your existing light globe! And it's ready to protect you, your family and your property. Simply brilliant!

- Fully self contained: minimal 'installation'
- Is not operated during daylight
 Microwave movement detection: fully adjustable
- For new or existing installations



Security Breakthrough!

A burglar alarm in your pocket . . .

Dick Smith Electronics, in conjunction with Voicecall Communications, will very shortly be offering a full security monitoring package for the home, small business, factory, etc.

Just imagine: a full reporting system via your normal 'phone ine which will not only have automatic operator respon (to your instructions), but will ilso call your pocket pager (Beeple, numeric or alpha-numeric) with a special tone or code. It could even warn you which sector of the alarm is affected - a fire - anything!

And the big news is this system will be a fraction of the cost of similar reporting security systems.

We expect to announce details soon: watch our press adverts for full details!

Alarm **Power Supplies**



Invaluable around the home or workshop. It will give a maximum of 1 amp at 3, 6, 9 and 12 volts DC. Simply plugs into 240V AC power socket - DC connections via screw terminals on front of unit. Ideal for use with alarm systems, intercoms, etc Cat M-9530

Overload protection \$ Simple screw terminal



3-4.5-6-7.5-9-12V @ 300mA

An extremely versatile supply ready for just about any application. Switchable output gives 6 different voltages ranging from 3V to 12V, at up to 300mA. Complete with 5-way connector to suit almost all power sockets in common usage (including 9V battery connectors). Cat M-9526

Batteries No-leak



Cat L-5160



A high current rechargeable battery ideal for alarm use. Fits perfectly into our Security Centre, also great for other alarms. Easy to keep trickle charged.

Cat S-3320

\$2850

12V 1.2Ah

Gel Cell As used in EA Home Alarm

Cat S-3315

Eveready Dry 12V

12 volt dry cell with enough oomph to drive bells, sirens etc. Cat S-3242



Cables

Light Duty Fig. 8 20¢/m Cat W-2010 (2-cg Heavy Duty Fig. 8 40¢/m Cat W-2020 4-Core 85c/m Cat W-2100



How to put it all together

Have you been burgled yet? Then you must be one of the lucky ones. Did know that crime against property accounts for over 75% of all major crime? If you've lost your valued possessions then there's no need to tell you how it feels. So what have we done about it? We've written this book to tell you - what you can get - how it works - how it fits together - and how you can tailor an alarm system to suit just about any budget and situation. Home, office, factory - just about anywhere! And what's more, it'll show you that just about anyone can install a professional system that would otherwise cost \$\$\$\$ more. Cat B-6000

ONLY

PHONES PHONES



CORDLESS PHONES

Talk as you walk! The cordless phone goes where you go. Around the home, office, factory, workshop; anywhere! The basic unit just plugs into the powerpoint and Telecom socket and from then on you're free to wander up to 150 metres away – and still stay in touch! With digital lock-up (so no one else can use your line) it meets with the latest Telecom requirements. Just to make it even easier, it's got memory to store up to 10 numbers! All this with last number redial and auto battery recharge (it recharges itself on the base unit) makes this one of the best value phones around. DOC Approved, Telecom permitted. Cat F-5810.

DOC App No E002/13 Telecom Permit No C82/35/113

Ultimate Convenience!

Store & dial all those frequent numbers . . .

70 MEMORY PHONE

Most push button phones give you a last number re-dial. Check this one out: in the same size as a normal modern push button phone, you get a massive 70 number memory. That's right: it will hold up to 70 of your most-used numbers - probably more than you'll dial in a month of Sundays. Push button convenience- and because it dials the number for you, it gets it right. First time. No more wrong numbers (at the price of phone calls today, that could save you a bundle!). And if the number's engaged - just one button and it will dial it again. What could be more convenient? Plug-in connection - and even has a mute button.

Telecom permit pending at time of publication Cat F-5170



Take full advantage of the economic recovery by increasing your office efficiency NOW! This remarkable phone will store and automatically dial up to 80 numbers for you quickly and error-free! Think of the convenience and the money you'll save! Of course, it's convenience and the money you'll save! of course also a superb push-button phone with last number redial. dial.

80 Telephone number memory storage.
programmable security lock for STD/ISD
barring.
Access pause for PABX.
Ringer ON/OFF switch.
Last number re-dial.
Re-dial number transferable to memory.
Mute switch for privacy. He-dial number transferable to memory.
 Mute switch for privacy.
 Push-button dialling.
 Essential for the busy office – even for the home!
 No more costly wrong numbers!
Cat F-5165

Telecom Permit No. C83/33/108





PHONES PHONES



Thunderstorms

The telephone, in common with household electrical appliances, can be a source of electric and acoustic shock during thunder-

Use your telephone only for calls of the utmost urgency. Keep these calls brief. Whilst using your telephone keep clear of electrical appliances and metal fixtures.

such as stoves, air conditioners, refrid-gerators, window frames and sinks.



Gives an extra 15 metres distance from telephone wall socket.

Simple plug in design.
 Easy to rewind for storage when not in use.
 Cat F-5101

TELEPHONE **DOUBLE** ADAPTOR Now you can plug two phones in, or a phone and an answering machine! Cat F-5112

THE DSE PAL PHONE The one with the friendly price

Remember when cheap telephones sounded 'tinny' and weighed a ton? Now the Pal Phone is here with new state-of-the-art technology. Flerantly study and income art technology. the Pal Phone is here with new state-of-the-art technology. Elegantly styled and incorp-orating many of the superb features of its big brother, the 12 memory Automatic phone you'd expect to nay lote more for a phone you'd expect to nay lote more for big brother, the 12 memory Automatic Phone, you'd expect to pay lots more for a phone this good. Priorie this good.

Push-button dialling.
One button last number re-dial.

Mute button for privacy.
Ringer ON/OFF switch.

Cat F-5188 Telecom Permit No. C83/30/31 Cat F-5188



Standard replacement phone plug to suit Australian system. No solder connections.
Cat P-5700

CLOCK RADIO

The ultimate convenience for your desk or bedside table. Imagine the clutter of having a separate alarm clock, radio AND telephone. You'd hardly have room to rest a pencil, much less anything else! Now we have this superb AM/FM radio, clock and telephone, ALL in one unit! And they're both packed with features. The AM/FM radio features sleep shut-off function, alarm indicator, snooze switch, auto radio shut-off while telephone is in use, wake to music or alarm modes, large LED display and anything to music or airam modes, large LED display and anything else they're able to squeeze into this compact case. The telephone is just packed with features so those unexpected early morning calls can be as easy as possible. Push-button dialling with last number redial, ringer ON/OFF switch for when you don't wish to be disturbed. Mute button to prevent the other party from hearing a conversation on your side (but you can still hear them). All this, space saving and great value as well! Cat F-5108

Only



TELEPHONE ANSWERING MA

Think of the number of times you've just missed a phone call ... you couldn't get to the phone fast enough, or it didn't ring long enough. Think of the number of times you miss out on calls because you're not these to en there to answer them ..

A telephone answering machine solves the problem. Once very expensive and only a proposition for businesses, etc, Dick Smith Electronics has slashed the price to place a phone answering machine within everyone's reach - even for the home.

And the best part is you can simply plug them in to any existing Telecom-socket - it's easy and it's fully legal. And there's no Telecom connection fee to pay either (for existing sockets).

Dick Smith Electronics: Your Alternative Telephone Company!

SINGLE TAPE **ANSWERING** MACHINE

Imagine an economy single tape telephone answering machine with more advanced features than most dual tape machines! This fantastic machine has got to be the simplest of all to use ... in fact, the solid state microprocessor circuitry is actually activated by the slide of one button. Revolutionary VOX (voice activated) remote control no costly beepers required. Voice activated message time means more messages per tape and no wasted space. Unbelievable value!

- Microprocessor controlled reliability.
- Monitor mode (listen to incoming) calls!)
- VOX (voice activated) message time up to 60 sec. each.
 VOX (voice activated) remote
- control.
- Uses standard cassettes.

Telecom Permit No. C83/16/48

TELECOM DIRECT CONNECT PERMITTED



IT'S **LEGAL!**

You've probably heard much about so-called 'illegal telephones' and probably have been thoroughly confused by all the mumbo jumbo the media has put out on the matter. Well, here are the facts.

Well, here are the facts.

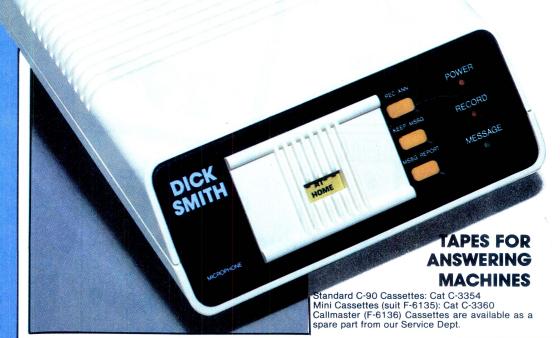
Last year the Davidson inquiry recommended that the Australian communications system be freed to allow private enterprise a share of the business. Telecom went along with the recommendation and it is now absolutely legal to attach any Telephone lines

telephone lines.
ALL DSE telephones in this catalogue are Telecom Permitted and the appropriate permit numbers appear in the product descriptions

on these pages.

As exciting new top quality telephones are added to our range continuously, in all probability your DSE store will have an even

greater range than was available at catalogue printing time. Dick Smith Electronics: Your Alternative Telephone Company.



Voice Activated Deluxe

Two Tape **Answering Machine**

actually improved on our popular original two tape answering machine which has sold thousands over the past few years. model, incorporating new This new model, incorporating absolutely the latest state-of-the-art design, stands head and shoulders above any other one or two tape machines available at any price!

STOP PRESS ... Now no costly remote control beeper is necessary! latest space-age techniques have eliminated the need for bulky, expensive battery-operated remote control beepers. Using a pre-determined vocal command, which YOU code into the machine, it is incredibly easy for you (and only you) to retrieve your messages whilst away from your phone, interstate or even overseas.
Code is easily changed for security.

Check These Deluxe Features . . . No er unit compares!

controlled Microprocessor for reliability.

 Monitor mode – hear who's calling. Power failure security - resumes

working when power returns.

Fail Safe – tells you if something is

wrong.
Record over existing messages or

auto electronic erase for security. VOX (voice activated) announcement change - to alter your out-going announcement as often as

necessary – remotely!

Easily changeable security coding

for remote operation.

• Answer only mode or answer &

Answer only meaning record mode.
Command confirmation – no quessing if unit has received

Space Saver - minimum space between messages Uses standard mini cassettes.

Cat F-6135 Telecom Permit No. C83/16/12 Beeper Activated Budget

Dual tape Answering Machine

Want the flexibility of a dual tape telephone answering machine without

paying through the proverbial proboscis?
This top quality answering machine doesn't have all the features of the one at left ... but it has a much lower price! Featurs dual tapes for convenience, remote beeper for message retrieval from any other phone (anywhere in the

world!) and much, much more. Great machine? You bet! Great price? Try beating it!

Features:

● Complete with remote beeper to retrieve messages.

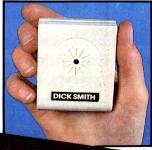
 Monitor mode lets you know who's calling.

Takes up to 100 incoming messages. Outgoing message can vary between

12-60 seconds.

 Built-in microphone. Cat F-6136

Telecom Permit No. C83/16/18







And when you're home but can't answer the phone . .



Now you can: with the Loo Phone.

The ultimate in convenience convenience!

Maybe it's a manifestation of Murphey's Law. The phone always rings when you're otherwise engaged. And hurry as you might, by the time you reach the darned thing . . . it stops.

Now there's the perfect solution: a phone for the throne room that's much,

much more than just a phone. For a start, it is a phone. And Telecom permitted, too. Ready to plug in and use (ok, so you haven't got a socket in the loo? Try one of our phone extension cords and perhaps a phone double adaptor!) Full push-button

operation, with last number re-dial. Yes, some people do make calls with them. "What'ya doing" takes on a whole new meaning!) Second, it's an AM/FM radio. While away the hours (minutes) - sure beats reading magazines. Great for catching up on the news early in the morning, too. Battery operated - no worries about lack of power points close by

Third, it holds the most important item in the house. And you can choose pastel print or plain!

Yes, we agree it IS absolutely tasteless. But isn't it incredibly useful! And your loo will certainly be one of the most talked about . . . and , dare we say it: talked to . . . in the street.

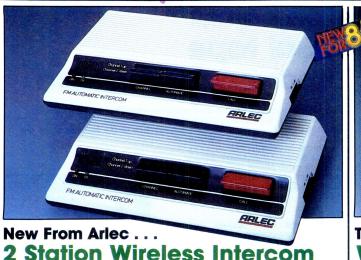
The Loo Phone, Exclusive to Dick Smith Electronics (who else would be game to sell a product like this?)
Cat F-5120

ONLY

FOR ALL THIS



INTERCOMS INTERCOMS



No wiring! Just plug into the power point and you're ready to keep in touch anywhere in the home, office . . . anywhere there's a main socket*!

*On the same phase **Intercom Power Supply**

High efficiency FM system for crisp, clear sound: and because it uses the mains wiring already in the building, you don't to install a thing.! Complete with transmit lock

switch so you can monitor nursery, sick room, etc. Great value: and the system can be extended to take up

The Babysitter: **Wireless Monitoring System**

From its name, the intended application is obvious. But it's much more: use it as a security monitor (has both visual and audio output) as well as a one-way intercom. Includes a sensitivity control to adjust minimum threshold of detection (eg won't be upset by traffic noise!) and has both automatic and manual operation modes. The Babysitter Alarm even works across different phases (unlike most other wireless intercoms) so it's ideal for the office or factory where phases may not necessarily be known Cat F-1018

Cat F-1011



Most intercoms without mains supply operate from between 6 and 12 volts at up to 1 amp. The DSE Powerpack supply delivers between 3 and 12 volts (switch selectable) at up to 1A DC. Perfect!

Screw-type connections. Cat M-9530

> Overload protection Simple screw terminal ConnectionHigh 1A output

Intercom Cable

12 core cable suitable for wiring multi-station intercoms. As used by Telecom in phone wiring. olour-coded insulation. Cat W-2140 \$ 4 40 metre



Up to 7 master stations

For fast, efficient communication it's hard to beat this mighty Myphone System. beat this mighty Myphone System. With push button dialling and phomes, offices, handpiece, they're ideal for homes, offices, handpiece, they rein who and seven stations factories - even motels, private hospitals, etc. You can have between two and seven stations in the system - all masters - and on a seven in the system - all masters - and on a rou can have between two and seven stations in the system - all masters - and on a seven station system three simultaneous conversations are no sible in privative cations are no sible in privative. sations are possible in privacy.

Cat. F1310

System Requirements
Cable - Number of stations plus two wires,
Cable - Station system, (each station \$89.95)
7. wires

7 wires. Power - 12V 350mA (Our M9530 is ideal).

each station 5 up price

\$9900

\$80.00 each



Two Station System

A highly efficient 2 station intercom that is fully transistorised and can be used over any distance up to 160 metres. Master unit has volume control and is supplied complete with slave and 16 metres of connecting cable. Either station can call even if the system is turned off. Can be used in any situation, even as a baby minder between bedroom and lounge.
Cat. F1020

PAIR ONLY \$4 995



Intercom System

Do you have problems communicating from one end of your house to another? Or your office, factory, etc? Now is the time to put in a quality Dick Smith intercom unit – and save your voice! This intercom system is easy to install, easy to use – and easy on the pocket! This four station intercom system is fully transistorised and comprises a master and three slaves. Each slave station has 16 metres of wire plus they can be wall mounted or placed on a bench or desk etc. This system is battery powered and even when the master is turned off the slaves can still

call back to the master simply by pressing the call button. There is no need to press the button on a slave when talking to the master - they are 'hands free'. This is the way to communicate between bedroom and kitchen, garage to kitchen, etc. Cat. F1040

Complete for only \$**3**450

Intercom Terminal **Board**

Makes wiring the above system easy, ENSURES COMPLETE PRIVACY. Can be mounted anywhere, near power supply is ideal (includes terminations). \$**89**95 Cat F-1321

ERCOMS INTERCOMS

Two station phone-type wireless intercom

Full duplex operation: two-way conversation without pushing buttons.

Looks fantastic . . . works even better! That's the all-new Dick Smith two station wireless intercom. Many people are much more comfortable using a 'phone' type handset; they're also much better in noisy environments.

All you do is simply plug in the units into any two power points of the same phase (eg. almost all houses, most offices – and in large buildings it's not difficult to find the same phase!)

- Two-way conversation without pushing buttons.
- Fully automatic lift the handset and the other station is automatically beeped.
- Use them as babysitters listen in to other end.
- Cradle can be either wall or desk mounted.
- Complete with rubber pads to prevent scratching.





Motorcycle Intercom

Tired of tapping on helmets? Throat sore from screaming? Or do you settle for riding in isolation? Now you can have the freedom of the bike and freedom of speech at the same time! The motorcycle intercom allows you to talk to your passenger just like you can in a car. Designed to fit into your helmet the earpiece/mic fits snuggly to your head. Needs no switching – so your hands are free to hold on. Comes complete with 2

earpiece/mics, plugs, leads, and an amplifier incorporating volume control and belt clip. Fantastic value and it'll keep you in contact! Cat F-1000

\$5950

Myphone multi station intercoms

... the most versatile intercom systems around!

What a system! YOU choose the type of intercom YOU want - just by various combinations of intercom types.

The master station is the Myphone TC-5M, with add-on stations either other TC-5M's, TC-PR slaves or the TD-1A doorphone.

You can make anything from a simple two station master/slave system up to a five master station or even an eight station master/slave combination. Now that's Myphone versatility!

Cabling is quite simple, with even the most demanding installations needing no more than our 12-conductors than the total number of master stations (eg a five master system requires nine conductors).

The system can be battery operated, or can be run from the mains via one of our plug-pack adaptors (M-9530 is ideal).

Where industrial or office intercoms are required with more than 5 master stations, we suggest you approach a professional intercom installation organisation, as intercoms of this complexity are not a proposition for the hobbyist.



TD-1A Doorphone

The Doorphone can replace either a TC-PR slave or a TC-SM master to give a great security feature in your system: you can find out who's at the door without opening it. And the TD-1A features a different tone from the other intercom calls so you know it's the door. Cat F-1200

\$4 995

TCPR Slaves

When a master/slave system is required use up to 4 TCPRs with one TC-5M. Any slave can call the master and vice versa, but cannot call another slave. Slaves include privacy button to prevent eavesdropping by the master. Cat F-1201

\$2450

TC-5M Masters

Use between three and five of these in an 'all master' system, or a single unit as the master station in a 'master/slave' system ... or whatever number you require in a combination system. Cat F-1240

\$8450



And competition class radio control, too

No worries with these digital proportional radio control units: they've been checked out by the leading radio control clubs and found to be A-1! No problems with interference or crosstalk. If you've had problems with other radio control units, try these: you won't be dissappointed.

And because there are two models to choose from, you can use them for all models: the 29MHz AM for cars, boats and other models, and the 36MHz FM for competition class planes, boats, helicopters, etc.

3 channel AM . . . 29MHz band.

The complete system, especially made for cars, boats & gliders (they only require 2 servos: why pay more?) but is also perfectly suitable for aircraft (extra servos available). On the clean 29MHz band - far from the maddening crowd on 27MHz! True digital proportional operation.

 3 channel system capacity: two channels with trim
 Includes transmitter, receiver, 2 servos, servo trays, battery holder and all fittings

Cat Y-1235

5 channel FM . . . 36MHz band

Competition class for competition class models. Serious modellers - the ones with the expensive toys - always use FM. It's considered the 'professional' band. 5 channel system capacity with four digital proportional and one on/off (bomb bay doors, undercarriages, etc). And the FM receiver uses 30% less power: a real advantage!

- 3 servos supplied (most aircraft use only 3)
 Everything included, right down to screws, servo horns, cables, etc
- Use for those models where quality counts: planes, helicopters, etc Cat Y-1245

Tamiya Pajero 4WD build-it-yourself kit

You've asked us for competition class for a long time. Here it is: a superb kit from the world's leading manufacturer precision moulded to make assembly so simple: yet so true to the real thing. It's a beauty; and boy it performs! Features: • Large resin front bumper for proper shock absorption ● Front swing axle suspension ● Semi-pneumatic rubber like tyres for excellent grip ● Takes

Tamiya Ni-cad battery for long action! Includes all components, transfers, motor & wiring. Does not include radio control unit or batteries.

7.2V Ni-Cad

Genuine Tamiya battery for extra action. A must for the competition user. Cat S-3325

12V Charging Leads.

Allows quick charging of the 7.2V NiCad from a car battery Cat Y-2521



SPARE SERVOS

Suit either of above radio control units: use to expand system to maximum capacity, or to replace when you prang the plane! Standard 43.6 x 21.5 x 39.5mm size, weighs only 42.5g with full plus/minus 45 degree operating angle.

Check these for value! Radio Controlled Cars... INCLUDING the radio control!



4WD Cheetah

Climbs up hills like a mountain goat!

Features include a durable plastic body with fine detailing like off road tyres, stone guard, illuminating head lights and much more. 4 wheels are driven, giving a 40 degree incline climbing capacity. Even has two differential gears for smooth cornering. Includes radio control unit with up to 50m range. Cat Y-2515



4WD Nissan Safari

Goes anywhere just like the real thing!

Similar to the Cheetah - so you can buy both and let the kids have a ball racing them. (The kids? If they get a

Also has incredible detailing, 35 degree climbing ability and comes with radio control unit Cat Y-2516



Turbo Porsche Racer

And if you've always wanted to own a Porsche . . .

Here's the closest you'll probably get! Fire-engine red Porsche Turbo, accurate scale model (1/13) of the real thing. Lights, too - and two channel radio control gives you full directional control - forward and reverse. Radio control includes trim controls, too. Quality Japanese made Cat Y-2514

GAMES & LEISURE

Test your Skill . . . beat the Master!





Now you can monitor your bike riding just like luxury cars and their car computers! This incredible high precision bicycle computer is a useful and fun accessory for the pleasure rider, serious competitor or exercise enthusiast. Display shows you:

● Current speed ● Average speed ● Maximum speed ● Total distance travelled ● Distance travelled since last reset ● Stopwatch for elapsed time in hours, minutes, seconds plus scans distance, speed and elapsed time.

Cat Y-3010

Suits any bike with standard spokes



The Bika-Lite safety wand

Here's top value for any kid from 6 to 66 with a push-bike. The Bika-Lite is a flexible acrylic wand that glows: and that means they can be seen from afar

a must in today's traffic.
It lights up at night
(the whole wand
glows) and the dayglow flag means it
can be seen during
the day.
Includes fittings for
all cycles and fitting
instructions.

\$**Q**95

Cat Y-3020



Reversi Master

Sounds easy: just try it. And you'll be hooked. Based on the old Japanese board game of 'Go', you must try to fill the board with your coloured men before the computer can. And just when you think you've got it won Two levels of computer play - or manual mode so you can

Two levels of computer play - or manual mode so you can play it with a friend. And there are no pieces to lose! Cat Y-1017

\$5.00 less than last catalogue price!

HOURS OF FUN! \$34



Backgammon Master

The travelling backgammon game to beat them all. Has all the right rules of play-even the doubling cube- and it's a great aid to learning this exciting game, too. And the best part about it: you can actually beat the computer. It plays just like a person (not some super brain) so you aren't frustrated by losing all the time!

REAL BACKGAMMON FOR ONLY \$39



Count your savings

Computabank - The Electronic Money Box

Imagine! A moneybox that actually counts the coins -in each denomination - as you put them in - and displays the total in the box! Yes, it can recognise individual coins and add them to the total - so you know exactly how much money you've saved. Beats the old piggy bank any time!



\$**28**50



Checker Master

One of the world's most popular games (ok, so we call it draughts). Now you can match wits with the computer (or play with a friend) and see who gets who! Small enough to fit in the pocket: ideal for travelling! Cat Y-1016

FANTASTIC VALUE!

\$**34**



And now CHESS!

It's taken a long time: but the wait was worth it. Until now, chess games have been a joke - either cheating, playing at a grand idiot level or even not knowing the rules. Now we have a 'Master' series game which solves all the problems. It knows the rules, it knows various levels of play - and it knows how to Castle. If you're a beginner, it will help you learn. If you're a good

If you're a beginner, it will help you learn. If you're a good player, it will help you be a better player.

Cat Y-1018

QUALITY

\$49



Hey! Any budding Beethovens, Bachs or Beatles out there?

Find out with these superb organs from Casio. Top brand, top performers: they'll bring out the musician in anyone! Two models to choose from:

Casiotone MT35 Organ

4½ octaves with rhythm and chord accompaniments, loads of voices and special effects – even a built-in demo tune! Cat Y-7035

Casiotone MT11 Organ

3½ octaves and eight different voices plus vibrato and sustain. Cat Y-7011

\$7995

SOMETHING DIFFERENT



forest... or after a sudden shower of rain. Everything smells so fresh, so invigorating!

You're breathing in negative ions, which abound in such locations.

The trouble with living in our polluted cities is there tends to be an excess of positive ions. And, while it cannot be conclusively proven (yet!), medical authorities believe positive ions are responsible for a whole range of maladies – from a feeling of lethargy to hay fever, catarrh, allergies, etc. Negative ion generators manufacture negative ions to counter the imbalance. And the results are ofter from a lessening of Portable model: symptoms to complete relief, users Aironic 210 Cat Y-9003 of negative ion generators swear by them.

pollen and smoke particles, so all in all, they're incredibly beneficial.

Choose from one of these three models:

You know what it's like deep in the 12V model: Aironic 203

Intended for car use, where many users report lessening or eliminating car sickness symptoms. Plugs into the car cigarette lighter socket (also stops people using the lighter-more benefit!) Cat Y-9002

240V model: Aironic 202

Plugs into power point, but uses so little power it won't even turn the meter. Complete with stand as shown Cat Y-9000

Battery operated, take-with-you type. Ideal for travellers: you can use it in the They also help clear the air of dust, hotel room, while in planes, cars, etc. Can also be used as home/office model. (Not illustrated: virtually identical to Model 203).

> Includes mains battery charger.

Breath Analyser

Why take the chance? If you've had a couple, wouldn't it be nice to know you're going to make it home - even if you're stopped and asked for a few breaths!

Our Breath Tester actually measures breath for alcohol level, with grad-uated 0.05% reading (most states now 0.05%). Keep one in the glovebox and

Battery operated, uses alcohol sensor similar to those used by Police Breath Testing Units. Complete with full instructions for easy operation.

Note: not a legal check. No liability for readings given! Cat Y-4000





Despatch those pesky little biteys to that great bug home in the sky! Blue fluoro tube attracts mozzies, moths, flies and other annoying insect pests. One minor problem: just before they get to the blue flash there's an electrical grid. One flash and they're ash! But it's safe: the plastic case has slots big enough to let the insects through, but not big enough for pinkies (even the babie's!) So you won't suffer a similar fate to the insects

Hang one outside and keep 'em out there. But dead. Or use inside to stop the midnight feast (mozzies feasting on you, that is). Also great for camping out (especially with the 12V modell)

240V Model: Simply plug into power point

Cat Y-8900

12V Model: Complete with car cigarette

lighter plug and 3m lead. Cat Y-8902





... NEW & INTERESTING



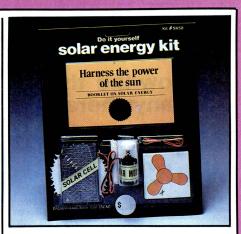
High-output Solar Panel

Calling all boat owners. Amateur operators. Technicians. And anyone else who's ever had to keep a 12V battery charged in an out-of-the-way place: Here's the first solar cell we've seen that combines both usable output AND reasonable cost. We've seen similar panels to these advertised elsewhere for \$100 more! A twin panel with two cells giving 10 volts at 450mA (in direct sunlight). So you get the choice of 20 volts at 450mA or 10 volts at 900mA! Ideal for trickle charging a car battery and it's complete with a blocking diode so it won't discharge the battery at night (also protects against inadvertent polarity reversal).

Just think: once you've bought one of these, all your power comes free - courtesy of Old Sol!

- 2 x 10V at 450mA
- (20V at 450mA or 10V at 900mA)
- Diode protected.

DON'T PAY \$219



Solar Energy Windmill Kit

Fantastic educational kit! Harness the power of the sun: put its energy to work for you. Kit includes a solar cell to convert sun's rays into electricity, a mini electric motor, 'propellor' to cut out and mount on the motor, wiring, etc, plus a fantastic little booklet 'Harness the power of the sun' showing experiments, etc for you to

Great for school projects: even the big kids can learn from this one. You actually get 'free' energy from the sun and learn how to put it to practical use. Assembly will give hours of pleasure and it's very educational.

Cat Y-2100

*



Only \$4 4 50



For the avid star gazer or would be astronaut: this fantastic telescope with 50mm lens and focal length of fequals 650mm. Great for watching the in-law fly past the full moon! Complete with sturdy metal tripod, angle indicator and position-locking screws. The accurate rack and pinion focus adjustment allows smooth one handed operation. Ideal gift!

Cat Y-1090

Only \$**49**9

Complete with Tripod!

Clinical Thermometer

Now the scientific, accurate way of taking temperature. No more strained eyes trying to read those impossible little numbers. No more false alarms because you can't see the thing properly. No more searching through cupboards only to find the fragile thermometer lying broken on the bottom shelf. Highly accurate and it BEEPS at you when it's time to read it. LCD Display. A must for the medical kit. Cat Y-5000

Only \$**44**50

Digital Super Sensitive Clinical metal locator

How often have you had to find a nail, pipe or wire in a wall? This little beauty will do just that without holes! Has sensitivity control that can be adjusted for the smallest nail or largest RSJ. Indicator light comes on when in the presence of metal. Operates from a single 9V battery. Ideal for tradesmen handymen, etc!

Only \$4250

CLOCKS & TIMERS

Keep right on time with DSE!

Know the time: anywhere!

24 Hour Quartz World Clock

Ham Radio Operators need to know the time anywhere in the world (it's no use calling Boris in Vladivostok if he's asleep!). They find out with the Yaesu Ham Clock. It tells at a glance what the time is anywhere. Businessmen find it just as valuable (if you do business overseas you'll know what we mean!) Operates on one 'C' size battery - lasts around a year or so!

Top quality . . . \$
And it's just

\$**59**50

Cat Y-1055

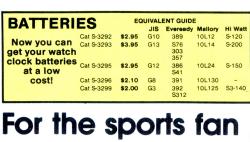


Clock with alarm & Thermometer

Mini LCD alarm clock also shows temperature at a glance! Ideal for the desk, complete with hinged stand to support upright on desk. Your choice of 12 or 24 hour modes and degrees C or F. A back light is provided for night use and a velvet-type sleeve for protection. Cat Y-1045

\$2750





LCD Clock/ Stopwatch

A handy Stopwatch/Clock that comes complete with lanyard for hanging around the neck. When used like this the unit will be the right way around for timing sports events etc. Quartz controlled for accuracy, the large liquid crystal display is very easy to read. Use it as a clock, or at the press of a button use it as a Stopwatch. And it makes a fantastic timer for yacht race starts, too. Finished in rugged black plastic for maximum life under harsh UV light outdoors. Cat Y-1041

\$2850



Pen Watch slimline, low priced

A superbly styled ball-point pen complete with an LCD digital clock right inside the pen. Great for those who don't like to wear watches. The clock shows day, date and seconds. The pen has a retractable nib and works just like you'd expect a pen to work. An ideal gift for a friend or treat yourself.

And it uses standard Parker refills!

Cat Y-1030

Replacement battery: Cat S-3299(G-3)



Computer Desk Clock

The perfect gift for the computer nut (and anyone else!) Mini LCD clock in the shape of a computer & monitor. Accurate quartz clock, battery operated (lasts for donkey's years!)
Cat Y-1039

\$495 AS ON

TV!



"KEYFINDER" Electronic Keyring!

You've seen it on TV: here it is! If you're one who loses your keys often (don't lie!) it's just the greatest thing since sliced bread. Just whistle - and your keys beep back at you! Designed for attaching to your keys.

Cat Y-1070

ONLY

\$1595

LIGHTS & TORCHES



A fluoro lamp. A Spotlight. A Blinker. And a car trouble light. All in one handy pack! Works from internal batteries (6 x 'D' cells - not supplied) or plug it into the car cigarette lighter (lead supplied). A must for the motorist, camper, fisherman etc. Great value. Size 285 x 100 x Cat Y-1086 S



Tiny Angel 2 in 1 pocket lamp

Tiny - but very handy! 6 watt fluoro lamp in a sturdy PVC protective case, complete with with spotlamp, too. Small enough to pack hand grip. Cigarette lighter plug and cable anywhere. Comes complete with hand strap. included. Size 185mm long x 45mm rectangular. Cat Y-1087

Quartz Halogen Power! Here's fantastic light output:quartz halogen power for general purpose spotlamping. A superbright 55 watt quartz-halogen bulb (replaceable)

Hand-held Spotlamp

95 Only \$4 **795**



FOREVER

Everyone who sees this is amazed! Solar cells keep rechargeable cells topped up. Squeeze the case and a high brightness yellow LED lights! Gives more than enough light to find a keyhole, etc. And it comes complete with keychain. Cat Y-1075

EVEREADY HAND-HELD STROBE

Bright xenon flash in waterproof case gives very high visibility. Ideal as a general purpose warning beacon, just a fraction of the normal retail price. We purchased a huge quantity: you reap the Cat Y-1085



CAMPING LIGHT

Attractive woodgrain-finish end plates and translucent diffuser make this fluoro car/caravan/camping light a must for the traveller. Specially made to suit negative or positive earth

12V systems, complete with a 2m cable and cigarette lighter plug. Cat Y-1082



Scope Light Mini magnifying glass with inbuilt lamp for throwing a little light on the

subject. 10 times magnification ideal for examining pcb's, components, stamps, general hobby work, etc etc. Takes single 'AA' battery; complete

with lanyard.

Cat Y-1080

PERSONAL ELECTRONICS

Take 'em anywhere!

Mini Tape Recorder/notetaker

Today's business person on the move hasn't time to sit down and write letters . . . or even spend time dictating them to a secretary!

Thank goodness someone invented the tape recorder! Now you can record letters, notes, messages . . . anything, anytime, anywhere. Going to work in the car. At home. Sitting in a plane. Today's mini tape recorders are made for the purpose: so small, so convenient - and so reliable. And it's not just business people who benefit; students take verbal notes. Writers planning their next epic. Travellers recording foreign adventures.

Choose from the models shown here: there's one for





A system like this used to cost a fortune! Some of the 'big names' still do! Why pay hundreds of dollars more and do no better . . .

It's a complete transcription package: a quality micro cassette player, with all the features the busy secretary needs: two speeds, so it's capable of playing tapes made on most micro cassette recorders (even has a plus/minus 15% speed variation control plus a head azimuth adjustment control to take into account some shonky recorders!)

Plus it has a foot control to give both forward and reverse direction control, PLUS a quality magnetic earpiece which plugs into the stethoscope type ear fittings, also supplied. All this AND a 240 volt to 12 volt adaptor, included in the low, low price!

You'd expect to pay \$\$\$ more for a unit like this in a 'big brand' name.

Compare the quality of this superb set: and you'll wonder how we do it at the price!

Features:

- 30 minutes playing time with MC-30 tape;
 60 minutes in 'low speed' position.
- Continuously variable speed control giving plus/minus 15% variation.
 3 digit tape counter to keep track of
- your position.
- 12 volt operated (240 volt mains adaptor included).
- Includes stethoscope phones. foot pedal & instructions.



2 speed **MICRO** CASSETTE RECORDER

Small enough to take anywhere: large enough for all your notes, letters, memos, etc etc.

The Micro Pal Micro Cassette offers two speed recording - 2.4cm per second normal speed and 1.2cm per second half speed. You'll find that half speed is perfectly adequate for speech - and your tapes last twice as long.

Operates from two 'AA' batteries (not supplied) or

optional 3V DC Adaptor. (Cat M-9525 is ideal).
Supplied complete with a vinyl protective wallet and carry cord. Size just 125 x 65 x 30mm. Cat A-4041

Micro cassette to suit: 15 minutes

Cat C-3361 \$450 eq



OCEAN MICRO CASSETTE RECORDER

MICRO CASSETTE RECORDER/ NOTE TAKER

Ideal for taking those personal notes, inventories and dictation. The controls and microphone placement permits recording while carrying in your shirt pocket!

The micro cassette notetaker offers three jacks (earphone, foot switch, and AC adaptor) for added convenience when used for dictation and stenography. One touch record button makes recording simple. Pause button for added control and convenience.

Supplied complete with batteries (3 penlight) carry strap and 30 minute tape. It's only 67 x 143 x 25mm and at 230g it won't weigh you down!

Spare Cassettes to suit:

Cat C-3360 \$380

DSE STEREO CASSETTE DICTATOR



Here's a neat idea: a dual purpose cassette player/ recorder that's just as much at home playing stereo cassettes as it is being used for dictation and other general purpose mono work!

It has an inbuilt microphone and speaker for mono recording and playback . . . or you can pop in the stereo headphones (supplied) for either stereo or

And the best part is it uses standard (cheap!) audio cassettes, giving you up to 120 minutes recording (depending on type of cassette used).

Plus, for dictation work, it features a fast forward/cue as well as a rewind/review button, plus pause control. All this in a protective case - ready to handle the rough work as well as the play!

SONAL ELECTRONICS

Have you got the message yet?

For people on the move, radio pagers are the most efficient and reliable way of staying in touch.

And now: Second Generation Pagers!

National Digital (Numeric) Pager

Even better than a tone (such as Beeple) is a digital (numeric) pager. With it, you can see which number you have to dial. Or, through a system of pre-arranged codes, a message.

The new National numeric pager does just that: with its 20 digit LCD message (12 plus 8 by line scrolling) it's ready for even the busiest sales rep, the most in demand executive . . . and it even works from your home security alarm too!

Features 8 memories: stores the 4 latest 20-digit messages plus four tone calls. And if you're busy and can't be interrupted, it will store them for later replay.

And a unique feature is the service area indicator: you'll know if you're outside the range - it tells you so. Rugged, reliable - and energy efficient (single AA alkaline lasts over two months!)
And the cost? Much, much less than you'd expect.

And the cost? Much, much less than you'd expect. Once purchased (yes, you own this pager outright too: no costly rental!) and you pay the once-only low connection fee, the service charge for the numeric pager is just \$18.00 per month.

Sydney Numeric Pager:Cat D-1012
Melbourne Numeric Pager: Cat D-1013

ONLY \$249 each

Dunupydy

Displayer

Or the topof-the-line:

Full Alpha-Numeric Display!

No more phoning back for that important message: it gets to you immediately!

The very latest in pagers from National, (slightly ahead of our time) this one is everything you could ever want. It has a staggering storage capacity of 1200 characters - up to 400 characters per message or 20 individual messages! So several messages can be automatically stored for later reference and action. And if a message is duplicated, it ignores it to save space!

Convenient belt-wearing position means you can read the display in situ. And back in the office the pager can be linked to a computer printer to give a convenient 'hard copy' message reference. It works from your home security alarm too!

With features far, far more than we could possibly list here, the National is absolutely the latest and the best in pocket pagers.

best in pocket pagers.
Compare the price to the 'ordinary' pager you have now. You'll probably find that it costs no more to have the heat!

Once purchased (and the \$12 connection fee is paid) the service fee for the alpha-numeric pager is only \$35 per month.

Isn't it worth that much to keep in touch?

Sydney Alpha-Numeric Pager: Cat D-1022

Melbourne Alpha-Numeric Pager: Cat D-1023

Commercial Leasing? yes, your local Dick Smith

Electronics store will be glad to arrange commercial

leasing for you (to approved customers).

\$569



The first affordable pocket radio paging beeper. So affordable, in fact, that all types of people are getting them. That's why they're called Beeples: the Beeper for People!

The Beeple means you're never out of touch. If you must be contacted, a phone call almost instantly sounds the Beeple in your pocket. And if you wish, up to four different tones can be arranged (four different phone numbers).

It even works from your home security alarm - ask us about this.

Until now, only business executives have been able to afford pagers. Rentals of \$50 and more each month were not uncommon. The Beeple has changed all that! You own the Beeple yourself: no expensive leases to keep paying!

All you pay is a once-only connection fee and a low annual charge for the use of the system. Think of the applications apart from business. You can go to the show knowing the babysitter can contact you. You can even use it to call the kids home for dinned

At present, the Beeple is available only in Sydney, Melbourne, Newcastle and surrounding areas. This year, however, will see expansion to other capital cities.

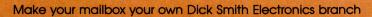
What does it cost?

The Beeple itself costs just \$99.00 - that's all! Annual fees depend on the number of stations (tones) you require. A single station costs just \$84 per annum. 2 stations \$104, 3 stations \$124 and all 4 stations just \$144.

And there's a once-only connection fee of just \$12.00 per line. That's all you have to pay!
Beeple: the Beeper for People. At these low prices for you!

Sydney Beeple: Cat D-1002 Melbourne Beeple: Cat D-1003

\$99



COMPUTERS COMPUTERS

The real alternative -Olivetti-AT&T M24

Yes! The finest alternative yet. Born of the most important partnership in the history of computing.

A fast, flexible, reliable personal computer that is much more than just a superior piece of hardware.

Behind it is a commitment to a better way of managing information and communications. One that can pay off handsomely in increased productivity and profits: Because it is designed to be flexible enough to meet all your business needs today and in the future.

Whether you use it as a stand-alone work station, or in a fully integrated system, you'll find the M24 a high performance machine. And a hard working addition to your office.

Streamlined and efficient in design, the M24 is robust and physically stable, with a footprint smaller than most business class PCs. And there's less radio frequency interference due to the metal case. One heavy duty power supply is used

for improved reliability...
All users can benefit from the highly sophisticated graphics facilities, offered as a standard feature. The elegantly styled 300mm green phosphor screen is designed for fatigue free viewing, and gives 4 simultaneous shades of green from a palette of 16 shades. Several graphics resolutions are available up to an amazing 640 x 400 pixels. So even after a heavy day in front of the screen you can walk away still feeling fresh.

The keyboard is an industry-standard compatible keyboard of slimline construction. It features 83 keys, including 10 function keys and numeric pad for maximum programming flexibility. Keys are well spaced with positive movement for fewer errors. Incorporated in the design of the keyboard are adjustable legs for the selection of the working angle most comfortable to the user. As well, provision is made for the connection of a mouse giving greater control of the cursor movement which is particularly useful when working with graphics.

The basic unit of the M24 contains a high speed (8MHz) Intel 8086 16-bit microprocessor. using true 16-bit communication between the basic elements mounted in the module. This

gives the M24 substantial performance advantage over many comparable personal computers using 8/16 bit communication @ 4.77MHz

The M24 incorporates such features as sound circuitry, parallel port, RS-232-C serial port, clock/ calendar chip with battery back-up, plus socket and circuitry for a dual channel integrated communications chip. All this adds up to one of the best investment potentials on the market today!

Software Range The limitation of many otherwise good

computers is their operating system.

As you'd expect, the M-24 is also totally compatible with the MS-DOS operating system. It runs the most popular off-the-shelf software (including Symphony, Lotus 1-2-3, Framework and Flight Simulator) with no modification. Financial analysis. Forecasting. Budgeting. Word processing. Inventory. The Olivetti M24 does it

But it doesn't end there. The Olivetti M24 also supports concurrent CP/M-86®, UCSD P-System® and PCOS (requires Z8000 board).

And its flexibility means that when it's time to expand, the M24 will actually make your computer growing pains painless.

Now the Olivetti-AT&T PC is ready for

business.

For a more comprehensive list of available programs see Page 39 of this catalogue.

Warranty and Service

The manufacturer's full six month warranty applies to all Olivetti Computers sold by Dick Smith Electronics.

All warranty service is done by Olivetti in their own service centres, using factory-trained technicians and genuine Olivetti spares. Higher levels of service, including "on-site" service, are also available both during the warranty period and after. Ask for details at your nearest Dick Smith Electronics store.

Specifications

- Basic Unit
 ☐ 16-bit 8086 CPU (8MHz) □ Socket for optional 8087 numeric Processor
- ☐ 16K ROM for bootstrapping, poweron diagnostics and BIOS
- 128K RAM (standard system) 256K RAM (expanded system)
- One or two 360K slim floppy disks
- ☐ Alphanumeric and graphic monochrome and colour display controller with 4 simultaneous 'shades of grey' or colours from a palette of 16
- Asynchronous serial port (RS 232) □ Parallel port (Centronics)
- Socket for optional communications adaptor
- □ DMA circuitry
- Sound circuitry
- Calendar/clock with battery
- ☐ One expansion slot (none if hard disk present)
- Bus converter with 7 industry
- standard expansion slots (optional) Keyboard
- □ 83 key industry standard keyboard
- □ Tactile and acoustic feedback
- □ N-key rollover
- ☐ Interface for optional mouse
- Display
- ☐ Monochrome (300mm) green phosphor screen ☐ 80x25, 40x25, 64x16 (col. x lines) characters
- ☐ High resolution graphics: 640x400, 640x200, 320x200, 512x256 pixel resolution

Operating System

MSDOS (operational compatability with industry-standard personal Computers)

Physical Characteristics

☐ Size: Basic unit- 380W x 160H x 300d mm

Standard System

\$**3005**

MS-DOS Operating System with GW Basic

Olivetti M24 Base Unit with 128K RAM and one 360K disk drive. Cat X-5200......\$2900 Olivetti IBM Style Keyboard Cat X-5210...\$344 Olivetti High Res. Green Screen Monitor Cat X-5250

Expanded System

Comprising: Olivetti M24 Base Unit with 256K RAM and two 360K disk drives. Cat X-5201 . . .

above. **Options**

64K Memory Expansion Kit (two needed to expand Standard System to 256K) Cat X-1187 \$65 Disk Drive (360K) to suit Standard System ... \$399 7-Slot Bus Converter – gives you seven slots for expansion boards

Cat X-5220\$200

Plus Keyboard, Monitor and Operating System as

The portable alternative

Olivetti-AT&T M21

It's the M21, a compact M24. And it makes the average portable look suspiciously like a toy.

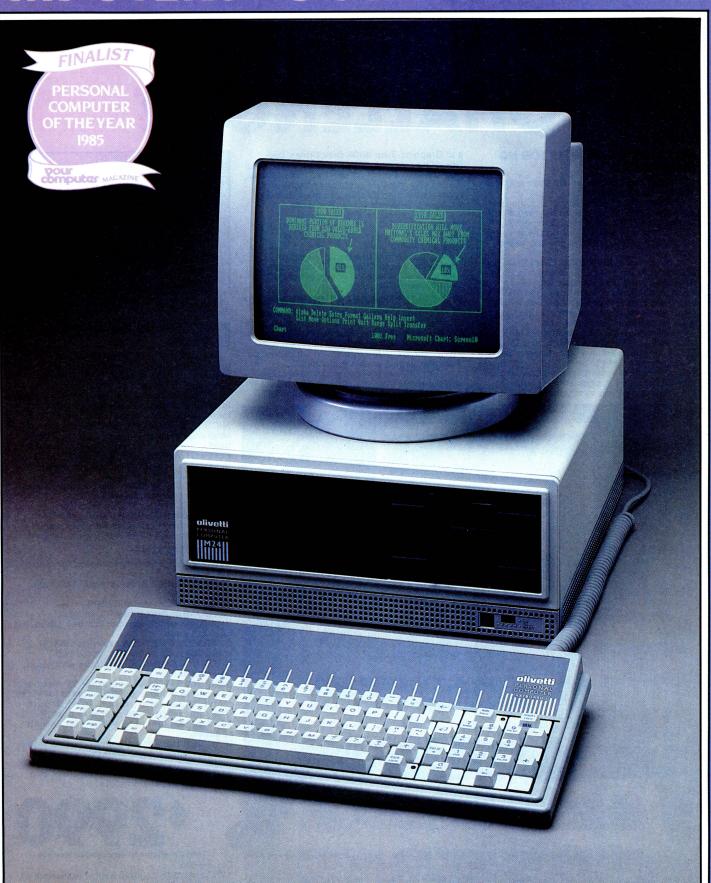
It's fast, flexible, expandable. A high-performance machine with high resolution graphics and a range of integrated options, just like its best selling brother.

A portable with all the power of the most advanced PCs. Hi-tech with a handle. And amazing value for money. Cat X-5204

Includes two 360K disk drives and 128K RAM.

\$**4495**

OMPUTERS COMPUTERS COM



OMPUTERS COMPUTERS COM

The 1985 256K

CHALLENGER®

MUCH MORE COMPUTER FOR NO MORE COST!

Wow! The Challenger has done it. And it's still coming up a winner!

A year ago the Challenger was the best value for money computer on the market. Today, it costs the same. That's incredible value in the world where you don't know how much a dollar is worth from one day to the

But now the **NEW CHALLENGER** gives you much, much MORE! An enormous 256K RAM memory is now standard with your Challenger. That's enough power to handle just about any personal or business task. With a maximum RAM of 640K there's no limit to what you can get your Challenger to do.

If you were thinking about an IBM PC then perhaps you should think again. The NEW Challenger gives you just about everything the PC gives - except the price. And what's more you get heaps of features on the Challenger that IBM charge for. Look at these features Challenger gives you as standard: RGB Output

and Graphics. Twin 360K Disk Drives. Disk Operating Systems. Parallel Printer Port. Serial Port. Joystick Port. If you wanted to add these features to your IBM you'd pay hundreds of dollars more than its standard price. But with the New Challenger you pay no extra.

What's more the Challenger is SOFTWARE COMPATIBLE with the IBM. For you that means an incredible variety of programs is available!

And the new Challenger is quality guaranteed! Each Challenger is individually 100% quality tested and comes complete with its own test results.

IS IT REALLY SOFTWARE COMPATIBLE?

Compatibility is a tricky business: some software made for the IBM PC won't even work on certain configurations of the PC itself. A few odd programs rely specifically on minor internal details of the IBM PC which cannot be duplicated legally on other machines.

The Challenger is about as compatible with the IBM PC as you can get. This means it can run just about all of the huge range of



software written for the PC - just pop in the

PLUS SOFTWARE WORTH OVER \$800 FREE!

That's right — with the Challenger we give you a set of software and manuals absolutely FREE! With the IBM PC, it's all optional at extra cost!

We don't give you useless software either. fact it's all the software you're likely to need for most home and office computing. MICROSOFT MS-DOS, GW DISK BÄSIC -Most widely used disk BASIC for the IBM PC

PERFECT WRITER/SPELLER V2.0*: One of the most popular word processing systems in the world.

PERFECT FILER V2.0*: Lets you design your own filing systems and mailing lists.
PERFECT CALC V2.0*: The electronic spreadsheet to beat them all! All of this software comes complete with user manuals, and it's included FREE with the Challenger!

SPECIFICATIONS:

CPU: 8086 full 16-bit processor running at 4.77MHz.

RAM: 256K user RAM, internal 16K video RAM.

ROM: 8K diagnostic and BIOS KEYBOARD: Separate with 84 keys

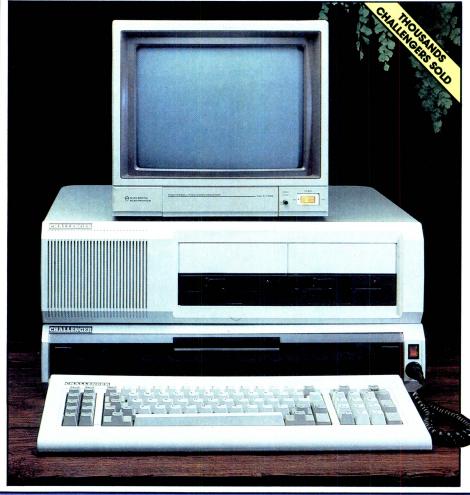
including numeric/cursor control group, 10 function keys. **CHARACTER SET 256 expanded ASCII**

RESOLUTION: 640 x 200, 320 x 200 COLOUR GRAPHICS: 8 colours with scroll, reverse, blinking.

INPUT/OUTPUT: RF output for TV receiver, composite video and RGB outputs for video monitors, cassette I/O port, joystick port, Centronics-type parallel printer port, RS-232C serial communications port, inbuilt speaker

DISK DRIVES: Twin slimline, double sided, double density, total storage capacity

EXPANSION: Three expansion slots, two



TERS COMPUTERS COMPUT

The Bondwell 14 Portable Computer

How good can a portable computer be? Well, we think the Bondwell 14 is good enough to write ALL of this catalogue: Yes, all copy was prepared using the Bondwell 14! Why not use one of the bigger more expensive units? Because the Bondwell has been able to handle anything we demanded of it, it's been easy to use. The 225mm non-glare amber monitor is sharp and easy on the eyes so you don't feel totally exhausted at the end of the day. There's excellent resolution so it's easier to edit copy and that means fewer mistakes to be corrected later on.

It's portable so we can move it from desk to desk, office to office just like carrying a portable typewriter. Except that when we carry the Bondwell 14 we carry all our information with us! EXCLUSIVE to DICK SMITH ELECTRONICS the Bondwell 14 was hailed in the USA as one of the best computers to come out of 1984! And it's little wonder.

If you're looking for a computer to run your business, manage your stock, write reports, memos, correspondence, or a novel file anything, then the Bondwell can handle the

With 128K of RAM memory the Bondwell outshines just about any of its competitors by 2 to 1. Even if they can match its memory, they can't match it's price. Add to this the twin double density, double sided disk drives built-in, each with 360K capacity, and you have a system which has almost unlimited potential.

Operates from the world-standard CP/M Vs.3.0 system it will always have an incredibly large range of software available for it. Bondwell will read disk files from other machines such as the Osborne, Kaypro, IBM PC and Spectravideo giving you greater access to information.

The ergonomically designed keyboard and layout (including user adjustable inclination)

16 user-definable keys, positive action keyboard and the compact design all add up to make the Bondwell one of the most convenient and easy-to use PC's available.

ACCESSORIES: Bondwell 14 Disk Basic Bondwell 14 Printer Cable

Cat X-9000

Cat X-9008 \$69.95 Cat X-9005 \$40.00

What about peripherals? The Bondwell offers the maximum flexibility when it comes to add-ons and extensions. It's simple to connect printers, a second monitors or even a compatible computer. TWO RS-232C ports, a parallel port and an external monitor jack are all included. And just to give you a little more, you'll find the Bondwell incorporates a speech synthesiser: just load a speech program and it will talk to you!
It even includes a printer buffer (spooler) so

you can get on with more important things while your printer catches up. Now that's thinking. And

What good is a computer without software? Well, it could sit on your desk and look pretty. But we're sure you won't be able to wait to use your new Bondwell ... So, look what we GIVE you with every Bondwell purchase!

OVER \$1200 WORTH OF FAMOUS MICROPRO SOFTWARE . . . FREE!

immediately you get it home, you get

Micropro bundled software: Wordstar, Calcstar, Mailmerge, Datastar, Reportstar. Probably all you'll ever need to run your business. And that's over \$1200 worth.....Absolutely FREE. *

Most CP/M programs will operate in the Bondwell 14: not just Vs 3.0, but earlier versions too. This means you have an almost limitless choice of programs anadalle.

Now it's not really so different to see why we chose the Bondwell to write this catalogue. With all the features, it speaks for itself!

SPECIFICATIONS:

CPU: Z80 Monitor: 225mm amber display Disk Drive: 2 DS/DD floppy disks

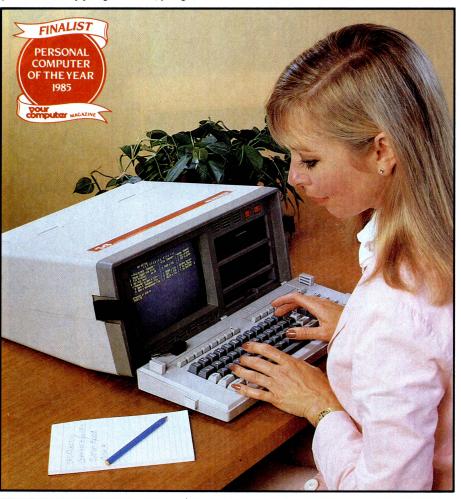
RAM: 128K

Drive Capacity: 360K - each disk Outlet Ports: 2 x RS-232C, Parallel Port,

Monitor Jack

Operating System: CP/M Vs 3.0

Weight: 21kgs Size: 430w x 190h x 380d So you can put your Bondwell to work for



PUTERS COMPUTERS COMPUT

The Cat. Personal Colour Computer

Did you know that our cat is herbivorous? Well it's not exactly a 'vegie'. Not like some other computers we know. It's just that it has a particular liking for fruit. Well, to tell the truth - it'll eat an Apple II series computer.

THE CAT, our famous personal computer has become one of the fastest selling PCs around and it's little wonder when you consider its power and features. Compare it to the other and you'll find it's by far the best value for money unit available today!

THE CAT is not an Apple clone or copy. It's an entirely new personal computer design, developed using the latest technologies. Although THE CAT is not a copy it is at the same time highly software compatible with the Apple II series. For YOU this means that it will run virtually all the enormous range of software available for the Apple II family. And that's good sense. It gives you a huge choice of good quality software.

What makes THE CAT so popular? Performance, power and incredible value for money are just some of the reasons, but let's just have a look and see!

The Apple II has a 16K ROM. Not bad: but THE CAT has a massive 32K! Which would you choose?

THE CAT has a keyboard of 81 keys, including a numeric keypad for faster number entry and 8 special function keys capable of 24 different (and software programmable) functions, 'It', on the other hand, has only 63 keys, no numeric key pad and only 2 special function

THE CAT gives you a full 80-column text display even in the basic computer. The Apple? You need to buy some extra bits

THE CAT gives you super high resolution colour graphics with an incredible 560 x 192 pixels, all individually addressable and with a choice of 6 colours. If you could put 2 Apples together you'd get something which compared.

THE CAT also gives you 8 colours in 280 x 192 mode, not just 6 as with Apple. And there's much much more! Like RGB colour output as standard (but not with the Apple). Centronics printer port, standard - but not with the . . . Guess who has twice the clock speed of the Apple

(2MHz vs. 1MHz) - More sound channels (4 to 1) and the list goes on.

But what's the best thing of all about THE CAT? It's the PRICE. Compare that and you'll find there's just no comparison at all!

Incredible Software Range!

Although the internal architecture and ROM programs of our new CAT have a brand new design, great care has been taken to make them as compatible with

Apple II software as the law will allow.
Even though the basic CAT will run a very large number of Apple II programs (including such famous programs as Visi Calc and Sargon), by adding the optional Emulator cartridge (Cat X-7530) it will run virtually all* of the Apple II range of software — and enormous range of high quality programs.

Specifications:

CPU: 6502A running at 2MHz

ROM: 32K bytes containing 24K enhanced Microsoft BASIC, System Monitor etc.

RAM: 64K bytes inbuilt,

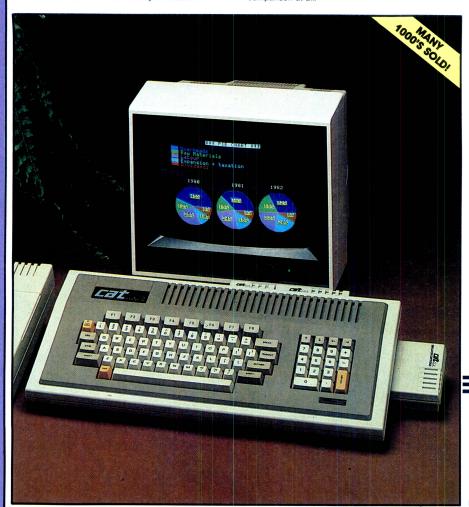
KEYBOARD: 81 full-stroke keys; typewriter format plus numeric keypad, 4 cursor control keys, 8 programmable function keys with 24 predefined functions. Full upper and lower case entry.

VIDEO: Both composite PAL and RGB colour video outputs inbuilt (optional TV modulator available). Both 80 x 24 and 40 x 24 text display modes inbuilt. Colour defeat switch for mono display.

GRAPHICS: Maximum colour graphics resolution is 560 x 192 pixels, individually addressable (twice the Apple II resolution)

SOUND: Four programmable sound channels, 6-octave note range. Inbuilt speaker with volume control.

I/O FACILITIES: Cassette port inbuilt, Joystick port inbuilt, Centronics-type printer port inbuilt, Bus expansion interface, expansion cartridge socket, connector for RS-232C serial adaptor.



Basic Cat Computer

Cat X-7500



* Ask us for a complete list of tried and proven Apple II series software that will run on THE CAT.

Extra cartridges & monitor shown are available at extra cost.

ERS COMPUTERS COMPUTERS

And the Cat Grows to Fill Your Needs

As you gain experience, your CAT Personal Colour Computer can grow to match your needs. Whether you just want to add joysticks and an RF modulator, or expand your system with twin floppy disk drives and an RS-232 serial communications adaptor, the expansion and support components are all available – and at very attractive prices. You can have an expanded CAT for less than the price of a basic Apple II!

1. Dual Joysticks

2. Emulator Cartridge

Need the highest possible degree of Apple II compatibility If so, this Emulator is for you. Plug it in and your CAT will run virtually all Apple II software.

run virtually all Apple II software.
cat X-7530.....\$99.00

3. RF Modulator

4. Disk Controller

5. Disk Drive

Compact and powered from the CAT itself, this disk drive lets you store up to 165K bytes per 5-¼ inch diskette. Comes complete with cable connecting to the X-7510 controller.

6. High Resolution RGB Monitor

7. RS-232C Serial Adaptor

Plug in this interface adaptor into the socket on the rear of your CAT and it can communicate with other computers or data terminals - either directly, or via a telephone modem. Operates at seven data rates, from 110-9600 baud. Cat X-7515.

8. Other Expansion Items

X-7513 Filer Utilities Disk complete with DOS and user manual (suits either CAT or Apple II)

X-7540 Printer Cable suits most Centronics-type parallel printers \$39.00





The Ideal Learning Aid:

catnet

Total control of communication in the classroom!

The teacher can simultaneously download data and information to up to 16 students (each with their own Cat) and can then selectively 'talk' to individual students - via the computer. Any slave terminal may request help from the teacher: it will even beep the teacher to alert them. All this at high speed - 16K in just approx 20 secs. There's no degradation in performance as additional slaves are connected - and the cabling is very simple: no costly installation here!

A unique queue facility allows multiple student enquiries - and because the slave cartridge only uses 16 bytes of user RAM it leaves maximun space for working.

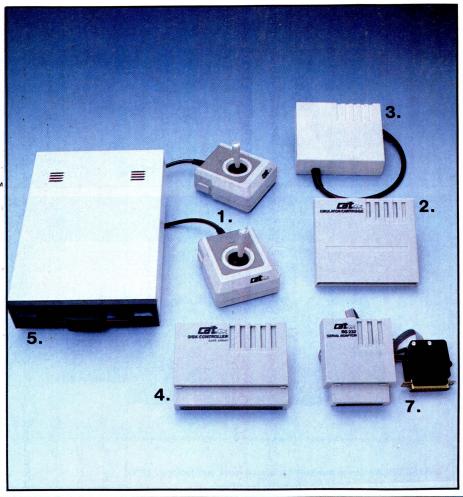
This outstanding system is a fraction of the cost of other classroom control systems.

Cat Net Components:

Cat Net Controller (one required per system)
Cat X-7595 \$349.00

Cat Net Master RS232 Interface (one req. per system)
Cat X-7596 \$139.00

Cat Net Slave Cartridges (one req. per student)
Cat X-7597 \$79.00



COMPUTERS COMPUTERS

The one you've waited for ...

VZ-300 Colour Computer!

Remember the VZ-200? Remember how long it was the best value for money computer around? Now the VZ-300 gives you even more incredible value! The computer for the home, office or classroom. Student or teacher the VZ-300 offers more from the beginning and even more as you advance.

or the BEGINNER it offers all the power you'll need to get started. And as your expertise grows, there's a huge range of peripherals you can add on. If you start with the VZ-300 you won't have to change your system as soon as you learn how to use it.

For the EXPERT it offers an incredibly low priced computer with 18K memory expandable to a huge 64K and an enormous range of peripherals for business, teaching, or pleasure. And the VZ-300 is now available with its own DISK-DRIVE.

For the KIDS it offers an incredible array of games and educational programs. Show them that learning can be fun with 9 colour graphics and musical notes as they learn the basics of computer

The VZ-300 gives you much, much more!

MORE memory! Now you get 18K RAM memory so all you have to do is plug into your TV or video (all the connecting cables are supplied) and you can immediately start running your own programs.

MORE room for expansion with the 16K or 64K*

expansion module, add-on disk drive, printer plotter iovstick controllers.

MORE colour! Now you have the choice of three seperate screen modes, each at the touch of a button —with 9 colours for use in programming or word processing. Incredible value is not all you get with your VZ-300! Unbelievable expansion possibilities. Straight talk operating manuals in easy-to-follow steps with lots of illustrations. Built in cassette interface. Built-in video modulator interface. All neccessary interconnecting cords. And all the room you need for RON - Later on that is!

Fantastic Range of Software!

'Microsoft Basic' is the most popular computer language in the world and it's built right into your VZ-300. As a result you get an incredible range of software to choose from, dozens of GAMES, **EDUCATIONAL and BUSINESS/MANAGEMENT** programs. See page 39 for the full range of software programs.





* UPGRADE! All items marked * will also work with your VZ-200

Specifications

CPU. Z80 running at 3.54MHz

MEMORY. ROM-16K BASIC interpreter & operating

RAM. 18K expandable to 64K*.

KEYBOARD. 45 key full stroke keyboard with space bar. Automatic repeat key. 'Beep' for entry key.

SCREEN Text - 32 columns x 16 lines. Graphics -128 x 64 dots (8 colours) /64 x 32 dots (9 colours). Mix text and graphics — 32 columns x 16 rows/64 x 32 dots (9 colours). Selctable colours.

CASSETTE INTERFACE — Connect to ordinary cassette recorder (Baud rate 600BPS) Interface cord included. (For best results use VZ Datasette).

DISPLAY RF outlet to TV, antenna cord included. Video monitor to output.

POWER. Single 10V DC, 1A supply (adaptor included).

*64K expansion allows the user to address 32K in Basic but the further two 16K RAM pages is addressed by bank switching in assembler language.

1. Disk Drive *

Now you can have almost unlimited storage capacity for your VZ-300. Store your records and programs for instant access. Just like the big ones! Cat X-7302

2. Printer Interface*

When you need to print hard copy of programs and data. This low cost unit simply plugs into the back of your VZ-300 and lets you connect your printer.

Cat X-7320

3. Joysticks and Interface*

Add new dimensions to your games with these super responsive joysticks. Comfortable lightweight and easy to operate. Cat X-7315

4. Four Colour Printer/Plotter

More than just a printer but an X/Y plotter as well! Use it to produce graphs, pie charts, and printing in four different colours. All easily produced using simple commands. Cat X-7208

5. Memory Expansion Modules *

Just so it doesn't forget! Take your VZ-300 memory from 18K to 32K units. You'd hardly need any more.

Disk Controller *

So your computer can talk to your disk drive! It needs an interpreter, someone who speaks its language.

7. Data Cassette *

Store your programs and data for later retrieval! This deluxe recorder is made just for the VZ-300. Plugs straight in. Cat X-7310 \$**69**50

VZ-300 Colour Computer

OMPUTERS COMPUTERS

The one you can't afford not to own!





The REAL computer that starts from under \$100! You'd love to learn about computers? But thought all you could buy for your money were a few boring games. Now, we are the EXCLUSIVE Australian distributors of the new Aquarius. Not the 'Claytons" computer but the perfect beginner's computer which gives you the opportunity to see what a real computer does.

Learn how to RUN YOUR OWN PROGRAMS in the Basic language! PLAY GAMES! Organise your HOUSEHOLD FILES! And much much more!

Simply connect the Aquarius to any colour TV and it's ready to teach and entertain the whole family. There's something for everyone. And what's more, you won't outgrow the Aquarius! As you need to learn more, the Aquarius offers a huge range of additions that will take you into the world of electronic wizzardry once offered only by the BIG ones.

With a full moving-key keyboard Aquarius is truly EASY to USE. Microsoft BASIC computer language is built right in! The easy-to-read manual and simplified instruction cards make learning a snap

CREATE your own VISUAL EFFECTS with 16 colours an 256 built-in characters or design your own sound effects! Once you start to expand your Aquarius with the huge software and hardware range you'll find endless uses and possibilities for your system. With it's own mini expander, data recorder, memory expansion cartridges and thermal printer you'll soon wonder what the Great Computer Secret was all about!

Fantastic Software Range!

With more than two dozen fantastic games and educational programs available now and many being developed to add to the range shortly, there's just no end to the versatility of Aquarius. Software cartridges just plug into your Aquarius and you're ready for work or play. All software programs are available separately so you can purchase only those which interest you.

AQUABILIS with built in 2K memory (expandable to 34K) and its long list of expansion units and software is the REAL computer for the price of a TOY!

1. Mini Expander

Adds versatility to your AQUARIUS. Game playing is easier and more exciting with 2 detachable hand controllers and additional sound channels. Also has 2 cartridge ports so you can plug in your expanded memory cartridge into one even while you're using software in the other.

Cat X-6005.....

2. Data Recorder

Save your own program or utilise one of the many great software programs available on cassette with this great value unit.

Cat X-6010.....

3. Memory Expansion Cartridges

16K or 32K memory cartridges give you far greater flexibility by giving your computer a much larger memory. For more advanced programming

16K Cartridge Cat X-6015.....

32K Cartridge Cat X-6020......

4. Thermal Printer

Ideal for documenting programs, keeping records or printing charts and records. You'll probably never again see one at this price!

Cat X-6025.....

Paper roll to suit. Cat X-6026

Aquarius Colour Computer

Cat X-6000

Fantastic Value ONLY





RIPHERALS PERIPHERALS



High Resolution RGB Monitor

For the sharpest, brightest colour display, an RGB colour monitor is essential. Our new RGB colour monitor has a 30cm hi-res tube couble with video amplifiers of 18MHz bandwidth: the result is truly superb. RGB plus composite NTSC video (ideal for satellite TV), excellent for 80 column text display or 650 x 200 graphics.



High Resolution Green or Amber

If you don't need colour, here's the best choice: high res monitors in your choice of green or amber phosphors. (Personal preference of operators means a lot!) Ideal for use with most microcomputers standard composite video input.

Green Screen Amber Screen Cat X-1222 Cat X-1227



Colour Monitor

Don't need the highest resolution in a colour monitor? This low cost monitor offers excellent value for money. It has a 34cm vertical stripe tube, accepts normal composite PAL video plus audio if desired. Compatible with most colour computers, but not quite capable of displaying 80-column text or hi-res graphics. It also makes an excellent video monitor for use with your video cassette recorder! Cat X-1195

Dataphone II Australia's first - and fastest selling - direct

connect data modem is even better value.

Model II includes a push-button phone for

greater convenience - at no extra charge

And the modem simply plugs in to any

Telecom socket: no delays or costly inst-

- 300 baud full duplex
- Answer/Originate switch
- Includes push button phone
- Telecom Authorisation C83/37/1080

Cat X-3272

Monitor Swivel Base Screen angle wrong? Causing fatigue? Here's

the answer! A swivel base allows adjustment in ooth horizontal and vertical planes: lets you get

the right angle of viewing

for your system.

Cat X-1190

Monitor Dust Cover to suit above Monitors Cat X-1197 ...\$6.50

Remote Bulletin Board System (RBBS) to all computer owners?

Public domain software up and download

Electronic mail/message facilities

And much, much more

CALL THE DSE RBBS

(02) 887 2276 baud • 8 data bits • 1 stop bit • No parity

RP Pocket Computers





PC-1246

Both computers feature an integral slide-on protective cover!

The new PC-1246 gives you more power and speed in a pocket computer. It does heaps! All 18 alphabet keys are pre-programmed with a common basic function for ease of operation and programming. 16 letters or numerals on a 5 x 7 dot matrix screen for clear displays. And you can perform just about any scientific or mathematical calculation you'll ever need. Power, trig, exponents, logs, absolutes, logic, etc. etc. There's 8 stacks for data, 10 for subroutines and 16 for functions. Now that's stacks! A special battery back up system is built in so you don't lose your previous entry in case it's turned off in the middle of a program. Why not reach into your pocket? And pull out a computer! Cat X-5120

Tax free \$71.60

PC-1350

Famous brand Sharp pocket computer with expandable memory! Now you can really have a computer in your pocket. For business and technical use it's incredibly versatile. The large LCD display features 24 characters by 4 lines or graphics of 150 X 32 dots. 40K of ROM built in. But it doesn't stop there, with the addition of the expansion RAM cards the memory can be extended to an incredible 21K. What's more, you can save your information with the cassette interface or thermal printer for hard copy of those programs, graphs, etc. Of course it can be used as a calculator with 17 scientific functions, or for inventory or sales analysis. And YES! It still fits in your pocket! your pocket! Cat X-5115

Tax free \$225.57

RAM CARDS: Credit card size with their own battery so they don't forget while they're not being used. Available in 8K & 16K RAM to provide your PC-1350 with huge memory potential. They just slip into the back

8K RAM Cat X-5117......\$99.95 16K RAM Cat X-5118.....



CE-126P Thermal Printer & Cassette Interface

Hard copy from your PC-1350 or PC-1246 computer for easy-to-read text, numerical data, tables and graphs in an instant. The dot matrix printer gives clear copy with 24 digit lines on a 67mm roll. Battery powered so it's completely portable. Ideal for the person on the move: anywhere you need to keep information, data etc in hard copy

Cat X-5119

Tax free \$117.69

Paper roll to suit above: \$ 110 Cat X-5121



Budget Daisywheel

If you're using your computer for word processing, this adisywheel printer will give you top quality printing at a budget price. Prints at 18 cps. Offers a choice of 3 pitches (10/12/15 cpi) plus proportional. Takes standard 96-character print wheels and ribbon cartridges (Diablo/Qume compatible), paper up to 330mm wild. Vigraulottos othe 56 48. Stradard Controlled. wide. Very quiet too; only 58 dBA, Standard Centronicstype interface suits most popular computers. Cat X-3270

(Tractor feed extra)

\$119

Ribbon Cartridge for X-3270 printer

Tractor feed attachment as shown above



Daisywheel Printer/ Typewriter

Don't quite know what you want? An electronic typewriter with all the latest features . . or a daisy-wheel printer for

your computer (word processing, etc?)
How about both: in one package! A self-correcting
typewriter for all your 'normal' work, which also has a standard Centronics-type parallel interface inbuilt:

interfaces with most personal computers! Handles paper to 340mm wide. Cat X-3290



CPA 80 Dot Matrix Printer

When quality of print is less important than top speed printing, you want dot matrix. And for the best in dot matrix printing, you want this superb CPA 80 budget printer. Features print speed of 100 characters per second with 40, 80 and 142 columns (selectable), adjustable sprocket feed PLUS friction feed (capable of handling fanfold, single sheet or roll paper) ... it's got the lot! Print graphics and text in a wide range of styles – and the Centronics interface means it will operate with just about any computer. This really is amazing value for such versatility and performance. Cat X-3281

Printer Ribbon to suit Cat X-3282



GP-100 Dot Matrix Printer

Dot matrix printing at a rock-bottom price! The GP-100 uses a unique 'uni hammer' to reduce moving parts, give greater reliability and performance. Prints at 50 characters per second, provides full upper/lower caseA SCII character set (max 80 columns) PLUS dot addressable graphics (480 dots/line). Sprocket feed, takes standard 242mm wide fan-fold paper.

^{Cat X-3250} Only **\$2**



STAR DP 515 **Dot Matrix Printer**

Even more performance! Handle text or graphics with ease - with the magnificent STAR DP 515: its quality design and construction will ensure long, trouble free life. 96 column format with a print speed of 100 characters per second, it's ideal for printing invoices, reports, etc etc in business & industry - or for the computer enthusiast Suits paper widths from 20 to 38.1cm, with normal or enlarged print. These advanced features are yours at a



DSE ZIPPER Print Spooler

Let's face it: waiting for your printer to finish wastes hours of precious time. If it doesn't have a buffer, all you can do is sit and look at it!

Now there's the DSE Zipper Print Spooler: with a 64K memory of its own, it connects between printer and computer to hold print from the computer until the printer catches up! It's fantastic with daisywheels and other slow printers - your computer is free to

continue processing words or crunching numbers! Cat X-3400

Printer Ribbons & Paper

Printer Ribbon for GP-80 Printer (X-3252) \$14.50 Cat X-3253 ... Printer Ribbon for 830OP Printer (X3255) \$ 7.95 Cat X-3258 . Printer Ribbon for 8510 Printer (X-3260) Cat X-3261 ... \$14.50 Printer Ribbon for F10-40P Printer (X-3265) \$ 9.75 Printer Ribbon for BX-100 Printer (X-3278) \$18.95 Cat X-3279 ... Printer Ribbon for Canon Typestar \$ 3.25 Cat X-3297 ... Print Ribbon to suit X-3240 \$ 5.50 Cat X-3241 Print Ribbon to suit Cat X-2390 \$11.50 Correction Ribon to suit Cat X-3290 Cat X-3292

Bargain **Dot Matrix Printer**

The best news computer owners have had in years! A 40 column printer for less than \$100! Yes, of course there's a catch. You have to supply a couple of hours labour to build the power supply yourself and connect it to the printer mechanism. So for the cost of a bit of assembly, you'll save heaps. And look what you get -40 column Dot Matrix format. Fast 48cps print in two colours (black/red). Full ASCII character set (caps & lower case) plus Greek symbols and accent characters. lower case) plus Greek symbols and accent characters. Box & switches not included. Cat X-3240

Print Ribbon to suit Cat X-3241 \$5.50

4 Colour **Printer** Plotter

Incredible performance at a bargain price! Compact 4-colour printer/plotter uses

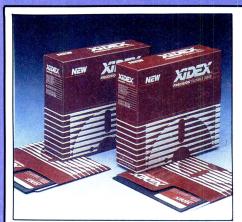
ball-pen elements, features an inbuilt micro itself! Prints on paper 114mm wide, with 64 character sizes in any of the 4 colours. Plots up to 480 steps in X direction, plus/minus 32768 steps in Y direction. Plots solid lines, dashed lines, points, draws graduated axes too. Controlled by software commands.

Centronics-type interface. WAS \$229 IN LAST

YEAR'S CATALOGUE!!! Paper Roll to suit Cat X-3246. \$3.80 Coloured Pen set to suit Cat X-3247...... Black Pen set to suit Cat X-3248 \$7.95

Cat X-3245

PERIPHERALS PERIPHERALS



"Xidex" quality diskettes

Don't risk loss of valuable computer data by using 'economy' floppy disks-they could cost you a fortune! The new Xidex range of Precision disks offer a level of quality and reliability previously unknown. Better disk substrate, finer particles in the coating, ultra-smooth polishing, tighter tolerances and an extra 18 critical tests ensure that all disks easily exceed the ANSI specs for 96 TPI high density recording.

Cat X-3505
Cat X-3510
Cat X-3512\$ 54.50 box BOX of 10 Double sided, d/density SOFT/s
Cat X-3514

COMPUTER

MAINTENANCE

Disk Head Cleaner

Single sided, double density HARD sector



DISK STORAGE FILES

Protect those valuable disks from loss or damage! You've spent perhaps days or even months collating that information and storing it on disk, just so you'll be able to call it up when you need it. While it's not being used keep it safe and clean in one of our fantastic storage files. All constructed of firm shock resistant plastic and designed for easy access. A must for any disk user!

1. Holds 40 disks for easy access and

recognition.

Cat X-3530	-	V	-	
2. Room for 30 disks in sturdy box for easy filing Cat X-3528	\$	1	3	95
3. A neat binder for tier filing 10 disks for immediate access	ė	A	A	0.5
Cat X-3525	ð	1	2	Y
4. Plastic case & lid holds 10 disks			0	
Cat X-3515	Þ		95	1

\$ 2 AL50



OUCH TABLET

This elegantly styled, durable attachment enables you to produce graphics directly onto the screen. With the program supplied all you have to do is plug it in and draw (with the stylus provided). The image will be reproduced on the screen. You can now store your drawing or graphics on disk. Play games, draw pictures or geometric shapes. An ideal learning aid! Comes with program and comprehensive instructions.

Cat X-7580

Protect that precious software. Comes with cleaning head and fluid. Fast and easy to use. Essential for the ongoing maintenance of your machine. \$ 795 Disk Head Cleaning Kit Pack of 10 disposable disks pre-treated with head cleaning solution, with Lexan re-usable jacket. Disposable cleaning disks means you know the job's done properly!

Computer Maintenance Kit The complete wash, scrub and shine. Disposable head cleaning disks, video display cleaner, anti static spray and lint-free towelettes all neatly packed to give you a comprehensive maintenance kit for that

valuable computer of yours.

Leda Anti-Static Pads

50 anti-static wet tissues in their own dispenser!

Lint-Free Computer Wipes

Large lint-free wipers for glass, acrylic and plastic.

PRINTER PAPER

Box standard width computer fan-fold paper (242mm wide). Cat X-1189\$36.50

Box fan-fold paper to suit GP-80 printer

RECORDERS



Datasette

cassette recorder specially designed for saving and loading computer programs and data! Fixed recording level for optimum recording, adjustable play level to let you load from cassettes recorded at different levels. Inbuilt tape counter, audio monitor with disable switch, motor control socket, Both 3.5mm sockets and 5-pin DIN socket for connection to computer. Uses four AA-size batteries or external 6V plug pack power supply. Cat X-7206

M-9525 power pack supplied



National Recorder

High quality mono recorder suitable for computer use to store your programs and data. 240V AC mains lead supplied or will run off 4 'C' sized batteries (not supplied). Features single touch record button and mechanical pause.

Cassette Cable

Universal cable suits IBM, Challenger, TRS-80, etc. 5-pin DIN to 2x 3.5mm & 1x 2.5mm phono.



Famous 'Microsette' verified computer cassette tape. Five minutes per side, over 40K capacity each side Cat X-3502

Quickshot II Quality joysticks to suit Atari,

Commodore and other computers/ TV games. New model is even better than the last one! Super responsive: gives you real control. Has standard 'D' plug

connector. Cat Y-1498



OLIBIZ STOCK/INVOICING CONTROL Maintains stock levels, sales figures and profitability by stock line. Value & cost of sales is also available. Cat X-5272 .

OLIBIZ DEBTORS LEDGER Maintains customer

accounts with details of invoices, credit notes, cash receipts and journal postings.

Cat X-5273\$395

OLIBIZ CREDIT LEDGER Fully maintains customer accounts & records all transactions that affect those accounts.

Cat X-5274 \$395

OLIBIZ GENERAL LEDGER System maintains the private ledger, profit & loss and balance sheet.

Cat X-5275 \$395
OLIBIZ PAYROLL Will maintain standard pay files. Time

MICROSOFT WORD The revolutionary program for all your word processing needs. Also includes 'Spell' and 'Merge'. Ideal for business notes & memos, letters or that novel. With its own reference guide if you need help.

Cat X-5257. \$495 MICROSOFT MULTIPLAN One of the most powerful and versatile electronic worksheets available! Ideal for business analysis & forecasting, project management or

household and personal finances. Cat X-5267

easily understood, presentation quality charts.

Cat X-5268 ... LOTUS 123 Probably the most amazing, versatile and comprehensive business program available today!

..\$749 Cat X-5265 CROSSTALK Simply one of the best communications

programs for PCs available today! Cat X-5270 \$239 PERFECT WRITER Easy enough to help the first time

user write more succintly and powerful enough for professional editing.

Cat X-5255\$345
PERFECT FILER Manage data like never before! Mailing lists, inventory lists, customer files, sales records.

Cat X-5262. \$295 SIDEKICK Can't find a calculator, notepad, appointment book? No matter what software you're running, just hit the button and a Sidekick window opens . . . a calculator, notepad, appointment calendar, auto dialler or ASCII table!

space! The STANDARD for data programs.

Cat X-5260 TURBO-PASCAL Why pay \$400-\$600 for a Pascal Compiler? For a fraction of the cost you could have Turbo

Pascal with features that are outstanding! Cat X-8749

FLIGHT SIMULATOR Put yourself in the pilot's seat and head for the skies! Cat X-7652 \$89.95

CHALLENGER

Cat X-5268 \$295
DATABASE 111 Latest version 16-bit limited ONLY by disk space! The STANDARD for data programs.
Cat X-5260 \$749
TURBO-PASCAL Why pay \$400-\$600 for a Pascal Compiler? For a fraction of the cost you could have Turbo Pascal with features that are outstanding!
Cat X-8749 \$109

Educational

TYPEQUICK Let your computer teach you how to touch type! A complete course in only 10 lessons.(Challenger

only). Cat X-8706

DRAGON MIX Just like Alligator Mix only this time concentrates on multiplication and division. Cat X-8702 ... \$54.95

FLIGHT SIMULATOR Put yourself in the pilot's seat and head for the skies!
Cat X-7652 \$89.95



Adventure & Arcade Games

CONQUEST Transcend the limits of time into a prehistoric era to assume your place as King of the

Falcons.

Cat X-6853 ... \$54.95
ZORK-1 The definitive adventure game with monstrous scope. Venture through a cavernous underground complex treasures, enchartment & more!

Cat X-8654 ... \$69.95
DEADLINE When you take on Deadline, you're putting yourself against a 12 hour time limit to solve one of the cleverest and most baffling cases in the detective game.

Cat X-8655



Business/Utilities

Z80 & CPM DISK & MANUAL -Turns your CAT into a Z80 processor - gives you access to the enormous range of CPM software!

X-7570......\$395.00
VISICALC -The powerful electronic spreadsheet that can calculate and display the answers to involved problems you could have spent hours doing by hand. Easy to learn, easy to use.

X-7600 SANDY WORD PROCESSOR - A version specially written for the CAT computer, taking advantage of the function keys and 80 column screen.

PFS FILE -An easy-to-use information management package that allows you to record, retrieve, and review information in a fraction of the time it would take with a

conventional filing system. these 12 self-paced lessons you will learn to program in the popular BASIC computer language. Learn BASIC in two nights or two months! Unique 'Let's Talk' feature allows easy review of prior material or skips to new

lessons. BASIC FOR BEGINNERS- An excellent introduction to BASIC for those with no previous programming experience X-7660 \$27.50

Educational

FLIGHT SIMULATOR -Simulates flight in a single-engine aircraft. Very similar to Challenger Microsoft Flight Simulator.

X-7652 ALGEBRATTACK -Kids learn the fun way by playing this arcade-style game. Makes you wish you were starting again!

ARITHMATTACK -As above but for arithmetic. X-7662 X-7662FRACTION -As above but for fractions. X-7663

.....\$27.50 Adventure & Arcade Games

REACH FOR THE STARS -A fast-paced exciting challenge for up to four players. Three levels of play. Expand and develop your empire, but watch for other empires - they may wipe you out!

X-7700 \$39.95

ZAXXON -(Official version) - The arcade game you must see to believe. Pilot your aircraft through 3-dimension-like battlefield complete with enemy aircraft, fuel tanks, concealed missiles and tanks. X-7702\$69.95

SUSPENDED -In cryogenic suspension for half a millenium, you are woken up to deal with an emergency. Strategically manipulate six robots, each having a distinct perception of the world to solve a myriad of realistic and original problems!

CARRIERS AT WAR You command the land-based and/or naval components of either nationality in any one of five historical scenarios. Play against the computer or a friend.

VZ-300/200

ī	Business/Ottlittes				
١	Hex Utilities	(8K)	X-7280	\$13.95	
١	Word Processor	(24K)	X-7281	\$29.95	
Ĭ	Editor Assembler	(24K)	X-7282	\$22.95	
į	Statistics 1	(8K)	X-7251	\$13.95	
	Statistics 2	(24K)	X-7252	\$13.95	
	Mailing List	(24K)	X-7259	\$13.95	
	Biorythym	(24K)	X-7237	\$ 9.50	
	Disassembler	(24K)	X-7278	\$13.95	
	Educational				

Educational

Matrix	(24K)	X-7253	\$13.95	
Intro to Basic	(24K)	X-7255	\$13.95	
Speed Reading	(24K)	X-7257	\$13.95	
Typing Teacher	(8K)	X-7258	\$13.95	
Music Writer	(24K)	X-7276	\$13.95	
Spellomatic 1+2	(8K)	X-7285	\$13.95	
Spellomatic 3+4	(8K)	X-7286	\$13.95	
Flashcard 1+2	(8K)	X-7287	\$13.95	
Flashcard 3+4	(8K)	X-7288	\$13.95	
Metric Spycatcher	(8K)	X-7289	\$13.95	
Whizkid Spycatcher	(8K)	X-7290	\$13.95	
Adventure & Arcade Games				

Adventure & A	rcade Games	
Horse Racing	(24K) X-7238	\$ 9.50
VZ Invaders	(8K) X-7239	\$ 9.50
Dynasty Derby	(24K) X-7240	\$ 9.50
VZ Ghost Hunt	(8K) X-7242	\$13.95
Норру	(24K) X-7243	\$13.95
Super Snake	(24K) X-7244	\$13.95
Knights/Dragons	(8K0 X-7245	\$13.95
Star Blaster	(24K) X-7247	\$13.95
Asteroids	(24K) X-7248	\$13.95
Golf/Tennis	(24K) X-7254	\$ 9.50
Tennis	(24K) X-7264	\$13.95
Checker	(24K) X-7265	\$13.95
Planet Patrol	(24K) X-7266	\$13.95
Ladder Challenge	(8K) X-7268	\$13.95
VZ Panic	(8K) X-7270	\$13.95
Othello	(8K) X-7271	\$13.95

(24K) X-7272

(24K) X-7274

(24K) X-7279

X-7273

X-7275

X-7232

(8K)

(8K)

\$13.95

\$13.95

\$13.95

\$13.95

\$13.95

\$ 9.50

\$ 9.50 \$ 9.50

\$ 9.50 \$ 9.50

9.50

(24K) X-7231 Matchbox Poker (8K) Hangman

Dracula Castle

Backgammon

Killer Tomato

Chess

Duel

(24K) X-7233 (8K) X-7234 (24K) X-7235 Slot Machine Blackjack (8K) X-7236

Cartriage Software		
Night Stalker	X-6050	\$24.95
Snafu	X-6051	\$24.95
Astrosmash	X-6052	\$24.95
Utopia	X-6053	\$24.95
Melody Chase	X-6054	\$24.95
Advanced D & D	X-6055	\$24.95
Tron Deadly Disk	X-6056	\$24.95
Space Speller	X-6057	\$24.95
Burgertime	X-6058	\$24.95
MS Extended Basic	X-6070	\$24.95
Logo	X-6075	\$24.95
Cassette Software		

Logo	X-6075	\$24.95
Cassette Software		
3D Battlezone	X-6100	\$ 9.95
D-Fenders	X-6101	\$ 9.95
Chuckman	X-6102	\$ 9.95
Breakout	X-6103	\$ 9.95
Millipede	X-6104	\$ 9.95
Ed-On	X-6105	\$ 9.95
Games Pack 1	X-6106	\$ 9.95
Games Pack 3	X-6107	\$ 9.95
Ghost Hunter	X-6108	\$ 9.95
Space Ram	X-6109	\$ 9.95
Invaders	X-6110	\$ 9.95
Maths Amarda	X-6200	\$ 9.95
Read It	X-6201	\$ 9.95
Spell It	X-6202	\$ 9.95

X-6203

\$ 9.95

CALCULATORS

CALCULATOR

Calculator, Ruler & Clock: all in one!

What a great gift idea! 25cm ruler has inbuilt quartz digital clock plus a handy memory calculator with LCD display, square root key, etc. Just what every school student needs: and the calculator is the type most teachers recommend for young students.

Quartz clock for accuracy

Cat Y-1057

\$4 4.95

Ideal for school, home, office or workbench!



TI-30 III LCD Constant memory

Texas Instruments packs more into this budget priced scientific calculator than most other manufacturers do at twice the price! From elementary arithmetic, through the most complicated calculations this feature machine handles

Features:

- Easy to read 8 digit Liquid Crystal Display.
- AOS Algebraic operating system allows you to enter mathematical sequences in the same order that they are algebraically stated.
- Constant memory feature holds numbers in a user memory even whilethe calculator is turned off!
 APD Automatic Power Down provides
- APD Automatic Power Down provides for special power-saving features. The calculator turns itself off completely, after a period

Cat Q-3738

of non-use.

The Business Analyst MK II

This amazing calculator will – at the touch of a button – take the drudgery out of many complex calculations that businesses are faced with every day. It is also LCD memory calculator with auto power down, scientific notation and constant memory.

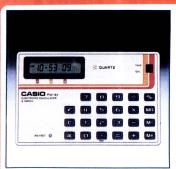
FEATURES:

- Sales tax and price.
- Monthly payment for mortgages.
- Present value of lease without residue.
 Solving for APP.
- Solving for APR.Payment amount for sinking fund.
- Forecasting with linear regression analysis.
- Finding yield to maturity on a commercial bond
- commercial bond.

 Future value of a series of equal deposits.
- and much, much more!!

Cat O-3785

\$**5**7



PW-61 Superslim plus time

The perfect pocket size! Time display showing hours, minutes and seconds. PLUS all the basic arithmetic functions with memory, square roots and percentages in a unit that takes up next to no space at all. Features; 8 digit display. Floating decimal point. Overflow check and LCD for long battery life and easy to read display. Ideal for anyone who needs to make quick calculations while they're on the move!

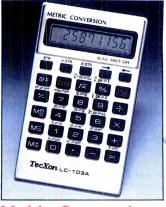
\$ 4 495



Solar-Powered Desk top Calculator

You need your calculator: but what do you know - the batteries are FLAT! This amazing solar powered calculator never needs a battery change. Features; Memory functions. Additions, subtraction, multiplication, & division. Plus percentage and square-root. Large surface and keys for mistakeproof operation. Slanted LCD display for quick, convenient readinos.





Metric Conversion

Metrics still a problem? Well, here is the calculator that takes the hardship out of metric conversions. This pocket sized LCD machine also does the normal functions: addition, subtraction, multiplication, division, percentages and memory too! Gallons to litres, inches to millimetres, miles to kilometres, square feet to square metres, and that's just the beginning. Converts imperial to Metric and vice versa!

- Metric conversion functionsMemory calculations, constant
- calculations, chain calculations, percentage calculations.

 Algebraic mode operation.
- Leading zero suppression.
- Very low power consumption and auto shut off.
- Constant memory

Cat Q-3025



Printer/Calculator

MAINS OPERATED

A compact desk-top calculator with print or no-print function. This mains operated model is designed to afford the most efficient, simplest method of performing the broadest range of calculations!

- One memory function.
- Automatic motor shut-off system.
 Large easy to operate keyboard.
- Large easy to operate keyboard.
 Large easy to read 10 digit green display.
- Nonprint function uses less paper.
 automatic constant.
- Floating and fixed decimal point.Uses standard non-thermal paper.
- 240 Volt Power Supply.

Cat Q-3018

\$**109**

PAPER ROLLS TO SUIT 90¢ A ROLL Cat Q-3017



Super-Slim LCD

You'll get used to having one of these delightful calculators in your pocket. Can be used in the home, office, factory, field or supermarket. You'll soon wonder how you ever did without a calculator. Beautifully made and ultra slim – you'll be proud every time you use your calculator. Supplied complete with batteries and instructions on use. Cat Q-3022

\$4 4 50 Calculator

Calculato Batteries

3 volt Lithium calculator batteries in two popular sizes. Suit a large range of scientific and statistical calculators. Blister packed for freshness.

E-CR2025 Cat S-3330 E-CR2032 Cat S-3331

\$**3**45



FX-550 Scientific

Most schools and colleges now allow calculators to be used in the classroom. And the one recommended is this Casio FX-550. Ideal for all levels from beginners requiring basic four functions and memory up to advanced high school, tech & university level with statistics and trig functions. Complete with protective wallet and full instructions. Cat Q-3100

- Features:
 Scientific notation with 8 digit mantissa and 2 digit exponent up to 10 to power +/-99.
- 6 levels of parentheses
- Amazing accuracy **Auto power**
- off with memory retention



FX-3600P Scientific

A superb addition to our range. This Casio FX-3600P scientific calculator has the added advantage of simple programmability, plus integrals! It has up to 38 step programming capacity, with integrals, regression analysis and 7 memories. It's the ideal calculator for tech & university students (advanced high school students as well), engineers, technicians, laboratory workers, etc. With a 10 digit mantissa and two digit exponent, it's ready to handle just about anything you can give it! Liquid Crystal Display, with up to 1300 hours battery life. Comes complete with wallet and instructions Cat Q-3105

FX-602P Advanced

Programmable scientific calculator for senior high school and university use. Particularly geared to engineering, higher mathematics, physics, space sciences, etc. Extra thin, pocket-sized unit with an alpha numeric display is capable of performing ordinary step-by-step and programmed calculations, computing values of 50 different functions

- 88 memories, up to 512 steps
- Full memory retention
 Full alpha-numeric LCD display Cat Q-3110

\$139



Cassette Interface

Store data, programs, etc. on a standard cassette recorder with this interface unit. Matches the FX-602P & 702.



Add-on Printer Unit

Add-on printer unit for the FX-602P & 702, for storing data, programs, etc. in hard copy form. Cat Q-3127

Paper to suit Printer Cat Q-3128 (pack of 5)



Student Pack

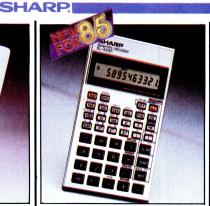
The perfect set for the student in years 7 to 9. With the famous Sharp EL-531 scientific calculator and all the features the mid-secondary student will need. Features include; Scientific functions. Statistics. 3 key memory. 34 Preprogrammed mathematical functions. Mantissa recall, 15 levels of parentheses and 4 levels of pending operations.
PLUS at no extra cost - 1 stapler, eraser. clutch pencil and micro-pen. Great gift value.Cat Q-3815

\$2495



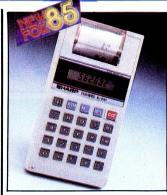
School time Pack

Ideal for the late primary early secondary student! Contains the famous Sharp EL230 calculator with all the basic functions the kids will need on a spacious keyboard and display which reduces errors and makes learning to operate easy. Features; Multiplication, addition, division & sub-traction. Percentage & square-root. 4 key memory function. LCD for clear easy to read display and long battery life. Auto power-off. PLUS! 1 x 150 mm ruler, protractor, eraser and 2 Noris pens. All for the one amazing price! Cat Q-3810



EL 506P

Now, for the computer engineer and programmer a calculator that handles Binary, Octal and Hexadecimal numbers at the push of a button! Including scientific and statistical functions You've been waiting for this for a long time and here it is! Features Scientific functions with direct formula entry so calculations can be entered as they are written for fewer mistakes. Binary, Octal and Hexadecimal calculations. Complex number calculations for absolute values, deviation & vectors. Preprogrammed for 56 functions. Statistics. 42 multifunction keys. ALL in a pocket sized calculator. Cat Q-3805



EL 8180

Ideal for the traveller, family shopper or anyone who needs to keep a record of prices or transactions! Easy to read LCD display. All basic mathematical functions and three key memory. Print or non-print mode to save power and paper. Paper advance. Runs on three penlight batteries for easy replacement. Fantastic value price for a PRINT calculator that can be carried around in your pocket! Cat Q-3800

Paper to suit Cat Q-3802

IDIO & HI FI AUD

TEAC T-SIS AM/FM Stereo Tune

Now that they've got it ... We've got it ... And so can you! Doesn't matter if you're an avid AM listener (it works in the afternoon as well) or an FM buff, now you can enjoy full stereo on both bands. This famous TEAC brand stereo tuner is superbly styled and delightfully simple to operate. Now, EXCLUSIVE to Dick Smith, it features improved AM quality with the addition of STEREO sound! It even has built-in recording calibration tone to give you distortion-free tapes!

★ 75dB FM S/N ratio (mono) ★ 400uV/m usable AM sensitivity Cat A-1515

AT LAST! TRUE AM STEREO JUST

\$299

Great Sound **Bookshelf** Speakers

The old speaker looking battered, sound almost inaudible? Here's some amazing value, high quality bookshelf speakrest shall be the envy of your friends! Constructed of 20mm teak-look finish timber with black-cloth removable speaker grilles. Rated at 80W RMS these will give all the performance you'll ever need. Check these outstanding specifications! 165mm high power woofer with high efficiency soft dome tweeter. 80W rms (yes that's rms). handling! Freq. range - 45 to 20000Hz. Sensitivity - 89DB. Dimensions — 370h x 260w x 234d mm. Weight 17Kgs/ pair. Sensational value! Cat C-2250

\$249





Bargain Belt Drives

Records a bit slow? Most of your music taking on the Chipmunks sound? Try this top quality belt drive turntable. Fully automatic 240V model which includes record size selector, anti skate and weight adjustment. PLUS superior ADC magnetic cartridge. Ideal replacement for that old rim drive! Cat A-3010

BSR QUALITY

Kids giving your turntable a hard time? Why not get a second one just so they can use it. This ECONOMY 12V belt drive is ideal as a second unit (or even a first one!). Complete with electronic speed control and quality magnetic cartridge. Great for dubbing! Fantastic value!



2 Band

Looks great! This quality portable radio cassette, AM/FM tuner features superb sound reproduction. With separate tone, balance & volume controls, auto stop, & level indicator, control is at your fingertips. AC/DC operation. Cat A-4026



4 Band Dual Cassettes

What more could you get in a portable player? FM/MW/SW1/SW2 bands and TWO cassette facilities. Exciting hif is sound reproduction! This unit features dubbing, high/low tone controls, auto stop, LED indicators and mic & phones jacks. Incredible value for a unit that allows so much flexibility. Cat A-4028



Detatchable Speakers

portable cassette radio that offers the true dimensions of stereo! Detachable speakers allow a flexibility not normally available with portable players. Features AM/FM radio, separate bass high/low - treble high-low, left & right volume controls, LED level display, AC/DC operation. Exceptional value Cat A-4035



AC/DC Mono

Amazing value! Light weight portable built for ease of operation and durability. Features auto stop, built-in condenser mic, monitor switch, high/low tone control and AC/DC operation (plug and cord supplied). Only 1.4Kg, so it's not a load to carry. Cat A-4025



1.AM/FM Stereo Cassette

The go anywhere stereo cassette with metal tape capability! Crisp sound quality from the lightweight 'phones. Dual phone sockets so you can listen with a friend.
Bargain value! Cat A-4015

2. Auto Reverse Stereo Cassette

Say goodbye to tape changing! This AUTO reverse cassette plays the other side for you. Includes superb quality 'phones. All this freedom and quality at a basement price! Cat A-4060

3. Stereo Cassette Player

A stereo cassette with all the features you're likely to need. Complete with adjustable headphones giving amazing sound reproduction. Save heaps at this

Cat A-4051

4. Budget Stereo Cassette

Has to be one of the best priced cassettes around! Comes complete with great sounding 'phones. Features sliding volume control and belt clip. Affordable quality! Cat A-4053

\$3450

5. Go-anywhere Note Taker

Try this beauty! No phones needed. Ideal for students, executives, etc. Features inbuilt condenser mic and review button so you can quickly check what you just recorded.

Cat A-4050

6. Mini AM/FM Stereo Radio

Just like a miniature ghetto blaster! An attractive slimline stereo radio with dual speakers, telescopic aerial, FM stereo indicator & carry strap. Plus a pair of super lightweight headphones. All at a fantastic

Cat A-4375

7. Personal AM/FM Stereo

Fantastic sound! This AM/FM stereo radio comes complete with famous quality Mylar headphones. Compact and lightweight it's easy to move around with you. Great '85

Cat A-4001

8.AM/FM Mini Radio

Listen to the cricket at the beach or the footy in the bush! This mini radio features LED indicator, telescopic antenna, carry strap and earphone. Amazing value! Cat A-4367

Maxell. UL 60 POSITION NORMAL

Maxell, UL 90 POSITION NORMAL

Maxell, UD 90 FO-SIRGH



Mini Amplifier

Mini amplifier for walkie stereos, radios, mini ampliner for walkie stereos, radios, etc - gives you full stereo performance with huge 1.5W peak output! Battery operated power amplifier has high/low filters, LED level displays. Mini speakers have really great sound. What a beauty! Cat A-4020



AM/FM Stereo **Headphone Radio**

It's all on your head! The radio is actually built inside the phones - so you haven't got to worry about where to wear the radio. A top little number in nudist colonies! (but where do they keep their money & keys?) And you can even use them as ordinary headphones for

your Walkie Cassette, etcl Cat A-4335

Cassette Top quality

Maxell Tapes

Famous Maxell Audio Recording Tapes: world renowned by hi-fi and music buffs as top quality, top performance. And now they're available at your nearest Dick Smith Electronics store!

Choice of UL or UD types, in the two most popular sizes.

Frequency response

REFERENCE TAPE: UL INPUT LEVEL. -20dB evel Output Frequency (Hz)

MOL (315Hz): + 3dB (5% distortion, 0dB = 250nWb/m)

C6OUL Cat C-3060 **\$2.80** 10 or more **\$2.60 C9OUL** Cat C-3062 **\$3.90** 10 or more **\$3.60 C9OUD** Cat C-3066 **\$4.99** 10 or more **\$4.50 Dick Smith Extended**



Dynamic Range You'll be amazed at the high quality for such low, low price. Dick Smith Electronics audio cassettes are

C90EDR Cat C-3354 **\$250** 10 or more **\$2.00**

manufactured in Australia to meet exacting standards Try them once: you'll be back for more!

Accessories for your sound

 \odot

Wet Walkie? **Water Resistant Carry Bag**

Anyone who owns a Walkman or other Walkie-type stereo or AM/FM radio knows the hassles: get them wet and they tend to stop. Bad news if you like sailing. Fishing. Or just mucking around near water. Solve the problem with

this water resistant carry bag. Repels H2O (and beer, wine & other goodies) set. Cat A-4010

Head Cleaning Tape Tapes sounding noisy?

Try one of these great value head cleaning tapes. The differen will surprise you. Clean heads prevent wear on your tapes and keeps like new Cat C-7098



Cassette Storage A deluxe vinyl cassette case which will protect your valuable cassettes. It's ideal for the sound enthusiast on the move holds up to 10 cassettes in their cases:
more without



Head Demagnetiser

Ideal for all tape recorders (NOT suitable for video cassette recorders!) It simply plugs into the 240V AC mains, and is held near the head and drawn away slowly to demagnetise it thoroughly. Most tape head should be demagnetised after every 5-10 hours of use: if you don't, your sound quality can suffer considerably as well as damage your recordings. Full instructions supplied with the demagnetiser.



7-way Speaker Switch Stereo selector switch enables you to

select any combination of three remote speakers. Terrific for when you have parties in more than one room. Attractive brushed gold finish steel wall plate fits any standard electrical box outlet. Cat C-7208

Carbon fibre record cleaning brush



Space age carbon fibre brush gives your records the sparking clean treatment they need for long life and pure music. Cat C-7096

DSXpress: the convenience of 7 different ways to order

Audio Adaptor leads

6.5mm SOCKET TO 3.5mm PLUG Cat P-6510
3.5mm STEREO SOCKET TO 6.5mm STEREO PLUG Cat P-6500 \$1.25
(10 up \$1.00)
6.5mm STEREO SOCKET TO 3.5mm PLUG Cat P-6570
6.5mm STEREO SOCKET TO 6.5mm
PLUG Cat P-6580 \$1.25 (10 up \$1.00)
3.5mm STEREO SOCKET TO 3.5mm
PLUG Cat P-6600 \$1.25 (10 up \$1.00)
RCA SOCKET TO 6.5mm PLUG
Cat P-6530 \$1.25 (10 up \$1.00)
6.5mm SOCKET TO RCA PLUG Cat P-6550
(10 up \$1.00) 3.5mm SOCKET TO RCA PLUG
Cat P-6540
RCA SOCKET TO 3.5mm PLUG Cat P-6560
6.5mm STEREO SOCKET TO 3.5mm
STEREO PLUG Cat P-6505 \$1.25 (10 up \$1.00)
3.5mm SOCKET TO 6.5mm PLUG
Cat P-6520 \$1.25 (10 up \$1.00)
2 x 3.5mm STEREO PLUGS TO 1 x
3.5mm STEREO PLUG Cat P-6525
(10 up \$3.20)
Audio Plugs
and Sockets
5 pin DIN plug to 5 pin DIN plug. Cat W-1010
5 pin DIN plug to 2 x 3.5mm plug. Cat W-1050
5 pin DIN plug to 4 x RCA plug. Cat W-1040

Audio Plugs
and Sockets
5 pin DIN plug to 5 pin DIN plug. Cat W-1010
5 pin DIN plug to 2 x 3.5mm plug. Cat W-1050
5 pin DIN plug to 4 x RCA plug. Cat W-1040
1 x RCA plug to 1 x RCA plug. Cat W-1070
4 x RCA plugs to 4 x RCA plugs. Cat W-1060
1 x RCA plug to 1 x 3.5mm plug. Cat W-1080
2 x RCA plugs to 2 x RCA plugs. Cat W-1180
2 x RCA plugs to 1 x 3.5mm plug. Cat W-1250
1 x RCA plug to 1 x RCA socket. Cat W-1280
1 x 3.5mm plug to 1 x 3.5mm line socket. Cat W-1150\$2.50
1 x 3.5mm Stereo plug to 1 x 3.5mm Stereo socket.
Cat W-1160
Cat W-1090 \$4.75
1 x 6.5mm plug to 1 x 6.5mm plug, (coiled lead). Cat W-1110
4 metres coiled lead with 6.5mm stereo

THE DSE RANGE OF TOP QUALITY HEADPHONES: VALUE & PERFORMANCE!



Top of the range!

Ultra light, precision made headphones! Giving astounding sound reproduction at 8 ohms impedance, 18 to 20,000 Hz range. Complete with lead and 6.5mm plug. Quality at the right price. Cat C-4124

\$3950



Famous"Sennheiser"

One of the world's leading audio manufacturers. These amazing light weight phones feature superb sound quality and weight just 60g. Adjustable to all sizes & complete with lead and plug. Cat C-4120

\$34 95



Separate volume controls Fold-away headphones

Quality Mylar phones giving superb performance with seperate volume controls for music as you like it. Wide, adjustable band for maximum comfort Cat C-4105

\$**22**50

The ultimate convenience! Fantastic quality headphones to suit most portable players. Lightweight for comfort, these fold away to fit in your pocket when you want some peace and quiet. Cat C-4100



Low cost, light weight!

Perfect for the walkie or miniature radio! Complete with 3.5mm plug and AT NO EXTRA COST there's a 6.5mm adaptor so you can plug into the home hi-fi. Great sound better value! Cat C-4106



Magnetic headphones

Old style 2k magnetic mono headphones. Just the thing for the old grandad crystal radio sets. Not like the new ones. all metal construction. Cat C-4000

\$4250



Stereo ear-plug phones

Ideal for joggers, sportsmen or anyone on the move! Fits neatly into the ear without headband. Fantastic sound quality! Comes with spare ear pads, 1.2m cord and 6.5/3.5mm plugs. Only 4.8g without cord.

Cat C-4095



Unbeatable Price!

Quality Mylar phones for less than 10 bucks! Perfect for the Kids' stereo, lightweight and comfortable. With lead and 6.5mm plug to suit most headphone sockets. Cat C-4101

Top quality Speakers



The Big Guns! These enormous woofers with specially designed ribbed cones can handle just about anything. Features: a huge 30W, frequency range 35 to 5000Hz with a magnet weight of 560g and measuring 300 x 60 x 20mm. Cat C-2245



Speakers need replacing? These beautifully finished speakers with pressed mild steel mounting assembly may be just what you need. Features include: 8 ohm impedance, frequency response - 40Hz to 8000Hz, power - 15W and magnet weight of 280g. Cat C-2240



MID-RANGE

Sounding a bit hollow? A midrange speaker may be what's needed. Add some depth to the sound of the system. These are great value speakers with a frequency range of 780-1400Hz and an 85g magnet. Suitable for 30W systems. Featuring the same diecast mount and ribbed cones

these are great value!



Hear the top end! A great performing tweeter beautifully designed and man-ufactured. Frequency response of 1700-19000Hz and a 55g magnet. Suitable for 30W systems. A quality tweeter at a fantastic price! Cat C-2230



An ideal speaker for the smallest enclosures or PA work. You can even wire them in series and parallel for the really big PA jobs! This is a dual cone speaker which allows for a greater frequency range than the more conventional single cone speakers. Typically the frequency range of this speaker is 30Hz to 18kHz. The speaker has a heavy duty magnet and comes as a dual impedance speaker, 4 and 8 ohms making it ideal for all jobs including car stereo systems. The heavy magnet coupled to the free edge suspension design allows for greater excursions of the cone under heavy audio passages. Cat C-2012



What a thumper! Powerful high compliance air suspension dual cone speaker with aluminium voice coil. Dual impedance of 4 and 8 ohms for almost any requirement. This is an amazingly powerful speaker but is also pleasant in response. Can be used in bookshelf systems or in PA systems. It is rated at 30 watts with a free air resonance of around 35Hz. This speaker is so compliant that you could see the cone move up to 13mm on heavy audio passages.

AMAZING VALUE! Cat C-2100

Hi Power L-Pad

Constant impedance. 15w continuous-30 peak. Mono use 8 ohms impedance. Ideal for controlling higher powered speaker placed outside (eg. for the BBQ or in a large play room). Can be mounted on a remote panel or in the speaker cabinet. Complete with instructions. Ideal fo tweeter control.

Stereo L-Pad

Controls audio level (attenuation 30dB to 0.5dB) while maintaining constant impedance matching between amplifier and remote speakers to ensure distortion free power transfer. Panel or speaker enclosure mounting. Essential for correct installation of remote speakers. Medium power rating into 8 ohms. Complete with instructions.



High & Midrange level controls

Whether you have ready built speakers, or you're making your own speakers, these faders will give you the control you need over the sound from your system. Dual concentric, heavy duty wire wound elements Midrange ensure proper loading of the crossover and amplifier at C-7210

 High power handling capacity ● Attractive & easy c-721 to mount ● Latest flush design ● Fully sealed front and back-no air leaks! ● ±2dB calibration markings \$ Available with either high or midrange labels.



Highrange C-7212

Crossover Networks 3 way

crossover frequency of approximately 3kHz. The special inductor/capacitor circuit ensures good cross over characteristics. Can be used in your own designs for a two way speaker system.

2 way

Impedance of 8 ohms and a As used in the Playmaster 3/70L, 3/53L and 3/26L speaker systems. Has 8 ohm impedance. Two inductor network with non-polarised capacitors. Crossove frequencies of 1.5kHz and 5kHz plus high power handles ing capacity. This unit may be used in conjunction with Faders C-7210 and C-7212.

> \$**44**50 Cat C-2513





Cat C-2662

20m or more \$3.50m

\$400 Innerbond is light, clean, dust-free and easy to handle. Fibre bonding ensures that this cellulose acetate insulation will remain resilient and not fracture or break down due to vibration. Weighs approximately 300 grams/sq. metre and is 25mm thick by 700mm wide – this is recommended density for most speaker usage.

Magnetic Earpiece

For radios, tape recorders, etc. Magnetic 8 ohm earpiece with 3.5mm plug, as used extensively in tape recorders, radios, etc. Ultra-\$ 4 25 Cat C-2760 10 up \$1.00 10 up \$1.00

Crystal Earpiece For crystal sets

Crystal high impedance earpiece with 3.5mm plug. Light-weight and extremely effective (for crystal sets or monitoring from any high impedance output. Top quality.
Cat C-2765 10 up \$1.80



Quality low priced Speakers 300mm Woofer

This top of the line, enormously powerful 80 watt (max.) speaker offers superb reproduction of bass notes. The hear of a truly great speaker system!

Features: ● 80 watts maximum power handling ● Acoustic suspension design driver with a free air resonance of 35Hz ● 8 ohms im-

Cat C-2022

250mm Woofer

Can be used in conjunction with other speakers on this page to construct a great speaker system ... or it can be used as a replacement speaker for that tired old system!

Features:

60 watts maximum power handling Free edge design 8 ohms impedance 35Hz free air resonance Capable of massive cone excursions without poling!

750

Cat C-2024

125mm Mid Range

A very smooth mid range speaker for the quality conscious. This speaker is very important to any system as it fills the gap left between the woofer & the tweeter. Modern design rear of speaker is enclosed! Therefore there is no need for a separate mid range enclosure in the cabinet. This unit can handle high power.

1 750

Cat C-2028

64mm Tweeter

Features an aluminium dome directly over the voice \$ coil so that high frequencies can be reproduced more efficiently - especially those between 15 and 20kHz. A stiff curvilinear cone transducer handles lower frequency uencies down to 2kHz! Impedance is 8 ohms

ONLY

Cat C-2032

25mm Dome Tweeter

A superb dome tweeter that can be used as replacement in many systems. The dome principle allows for an extra wide dispersion of high frequencies right up to the 20kHz region. The power handling rating of the speaker is in the region of 50 watts maximum, which makes it ideal for use with the Playmaster speaker systems in place of the conventional speaker supplied. System is in place or the conventional speaker supplied. The response of this unit is very smooth over the entire upper audio frequencies. Mounting is via four screws. upper audio frequencies. Mounting is via four screws.





Piezo Ceramic Tweeter

This superb piezo-ceramic tweeter is an ideal replacement tweeter. Handles up to 40 watts continuous. Frequency response from 5kHz to 27kHz! Suits all 8 ohm systems. Can be used with or without crossover. Add these to your system and you'll notice the difference!

150



PCT 2000 Piezo super Tweeter

A high performance tweeter of exceptional quality! Fully enclosed and complete with removable stand and spring loaded connector terminals Superb features! Handles 75W. Offers high impedance: 1200 ohms/1KHz & 40 ohms/40KHz. Frequency response 3500Hz to 40000Hz. Efficiency

90dB/1W at 1m. Cat C-2007 57mm Mini Speaker If it's performance you want, this 57mm mini speaker has it – in fact we found that it offered more performance than speakers up to 75mm in diameter! Nominal impedance of 8 ohms makes it ideal for many purposes. Cat C-2222 10 up \$1.80

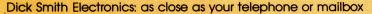
99

G

Here's a high impact, 200mm plastic grille that has thousands of uses! If you want to place speakers into the wall or ceiling of your home then this grille makes an ideal cover. Also ideal on boats and in vehicles. Has four screw hole fitting points.

Cat C-2646 10 up \$3.00





AUDIO/MICROPHONES



Includes batteries

Desk Top
Cardioid

For PA and amateur use. It has a push to talk and slide to lock switch for ease of use. A smart modern looking microphone that is ideal for any high impedance input. Cat C-1075

Specifications: ● Impedance 50k ohms ● Frequency re-sponse 60 - 15000Hz ● Size 200(h)x75(w)x110(d)mm ● Complete with 3 metres of cable with 6.5mm phone plug fitted.

\$4395

Tie clasp



Just like the microphones used by interviewers when they want the mic to be inconspicuous, but with this one you also get fantastic pick-up and perfect clarity. The microphone comes complete with tie-clasp and 2 metres cord, terminated with a 3.5mm phone plug. Being a low impedance device it is also ideal for use with your cassette recorder for recording the family or lecture notes, etc.

Dynamic Cassette Mic



The perfect replacement for your cass ette recorder. Can also be used with cassette recorders having a separate microphone as well as a built-in microphone. The cassette must have a low impedance input (99% of those on the ket) and the unit comes complete with main 3.5mm signal plug and 2.5mm remote switching plug. This unit will save your cassette recorder from becoming



CRYSTAL INSERT

Save a bundle with the very popular high impedance microphone which has a crystal insert. It is ideal for use with valve amplifiers. Chrome finish, looks smart and the price is so low! Experimenters can use this microphone as it is very rugged. Cat C-1010

BARGAIN AT



Scoop purchase of famous Audio Technica microphones! Top quality superb sound from these moving coil dynamics. Features frequency response of 70-15000Hz, sensitivity: 8dB with an output impedance 250 ohm. At only 270g it won't weigh you down. Ideal for stage, screen and band work. Fantastic price for a top quality unit!

Cat C-1026 ONLY

Buy a pair for stereo and save! ONLY \$39.95 ea!



At last! A true **Stereo Microphone!** Stereo Electret

Outstanding value stereo microphone! Ideal for those who want quality but don't wish to pay a fortune for it. This is a unidirectional mic with built in windscreen to protect against noise if used outside. Floating construction helps eliminate vibrations and touch noise Features include; built-in on/off switch, frequency response 50-20000Hz, Sensitivity 64dB, S/N ratio 40dB, output impedance 1K ohm max. At only 160g it's easy to handle! Comes complete with stand, 3 metre cord & plugs!

Quality Microphone Accessories

Mic Line Transformer

Just plug-in! Input impedance is high, 50k ohms and the output is low, 100-250 ohms. Fully shielded metal construct-ion, fitted with 6.5mm phone jack socket. Cat M-0701

Stand and **Boom Clip**

Powerful springs enable this clip to hold virtually any sized microphone securely and yet releasing is a simple two finger operation Has standard microphone and boom fitting threads. Cat C-1270

Gooseneck

Allows the microphone to be 'bent' into its required operating position. Can be used with floor stand and boom. Cat C-1226

Line Speaker Transformer

Ideal for PA applications. Multitapped for use with 100V or 70V lines. Cat M-1100

Mobile Mic Mounting Clips

Attaches to any ferrous surface. Cat C-1260 \$450

Screw-in-Type

For plastic, wood surface, etc. Cat C-1262

95¢

Electret Insert

Making or repairing a microphone? This unit will fit most makes and has a high sensitivity with omnidirectional characteristics. Connection data supplied. Weighs only 1.5 grams! Cat C-1160



Floor Stand and Boom

This professional floor stand and boom is a very advanced design. It converts easily from a regular mic stand to a boom stand. This unit is lightweight, portable, collapsible and stable. Comes complete with universal mic. holder which adapts to virtually any sized Cat C-1200

VALUE AT

\$5450

Inductive Pick-up

Complete with lead and plug



A great accessory which can be fitted to your intercom or any piece of equipment that has low output sound levels. Fitting is achieved via a suction pad. Record directly onto tape or feed into a more powerful amplifier. Comes complete with a 3.5mm plug and 1 metre of lead. Just attach and you are ready to record! Note: Current Telecom regulations do not permit this unit to be attached to a telephone. Cat C-7300

BARGAIN AT \$225

The **Fun Bug**

AMAZING VALUE

ike to be the super spy? It's easy with this FM wireless microphone. Tune it into your FM radio and it will transmit to around 30 metres. Great fun! Listen in to all those things you're not supposed to hear. But then you weren't supposed to hear that. Small & lightweight with pocket clip. Cat C-1071

AMAZING VALUE



AUDIO/PUBLIC ADDRESS

50W (Pk) PA AMP with inbuilt cassette

Now for all the power and control you'll need! Ideal for announcing, paging and background music! This robust PA gives you all the versatility you're likely to want. Logically arranged controls allow complete ease of operation. With a built-in auto-stop cassette deck and a huge 25 Watts you

can get your message across clearly and crisply. The 8 element LED output indicator let's you know at a glance just what's going on. Includes separate tape and tone control as well as input volume controls. Fantastic sound quality!



Amazing § 2 Versatility!

ONLY

SPECIFICATIONS:

Power Source: 240V

Output: 25W RMS, 50W Peak Tape player: Auto-stop cassette type Freq. Resp.: 50 - 25000Hz

Output Imped: 4, 8, & 16 ohm also 25, 70, & 100 Volt

Indicator: 8 element LED output indicator Dimensions: 260w x 80H x 230d mm



20W (Pk) PA AMP

This AC/DC public address system is ideal for most fixed amp situations (such as church hall or civic centre) as well as portable use (political rallies and fetes etc.). Features built in siren and fog horn (fantastic for boats!), 5 input jacks and automatically adjusting output impedance - any speaker from 4-16 ohms can be connected.

(Our C-2705 or C-2718 is ideal.) Comes complete with mounting bracket hardware and power cable.

12W RMS, 24W Peak Output power Input & Sensitivity Mic 3mV/200 - 50 ohms. Tape/Tuner 50mV/10K ohms. Phono 1V/100K ohms. aux 50mV/10K ohms. 8 ohm boost 100mW/8 ohms.

Operating voltage 240V AC or 12V DC. 165(w) x 65(h) x 150(d)mm. **Dimensions** Weight 1.5kg

Cat F-2035

40W (Pk) PA AMP with AC/DC supply

For the really big jobs! This top quality, powerful 45W, AC/DC amplifier is ideal for halls, scout groups, fetes, schools or just about anywhere you need to make yourself heard. With all the features you'll ever need in a PA it features 2 mic jacks with separate volume controls. Aux volume control, master volume control, common rail driving system (70V & 100V) as well as 4,8,8 16 ohm outputs. Plus - 2 bridged auxiliary input sockets. All this housed in a heavy duty metal case complete with 240V power

Output power

20W RMS, 40W Peak Input & sensitivity Mic 1-2:2mV/12K ohms. Aux.

Operating voltage **Dimensions** Weight

100mV/33K ohms. 240V AC or 12V DC 253(w) x 68(h) x 156(d)mm. 3.1kg.



Cat F-2036

Buy now, pay later . . . Any of our stores will be glad to discuss easy term payments (to finance company approved applicants). Just ask!

UBLICADDRES

ELECTRONIC REVERB Now . . . owww . . oww . . ow! You can create that echo, reverb and 'space' sound

of your very own. Ideal for the un sung muso, amateur theatre group or for the sound effects on the slide show you've been preparing Features in/out jacks for microphone or guitar. High level line. Adjustable delay time - 5ms to 95ms. Depth and repeat controls.

Cat F-3000

5450

MIC MIXER & PRE-AMP

What a performer! And so will you be when you add this to your system. Solid state mixer enables microphones, tuners, turntables, recorders, etc to be blended together to give one high impedance output. Suitable for most amplifier inputs. Fantastic for buskers, musos, etc: or even your slide show Cat F-2272



Rectangular Reflex Horn

This is a superior quality horn speaker incorporates rubber clamping to eliminate resonances. Rated at 15 watts, 8 ohms impedance and a frequency response of 300-5kHz. The dimensions of the horn opening are 127 x 200mm.

Cat C-2718

ONLY

\$2995



Excellent versatile speaker which is perfect for use on boats, alarm systems, P.A.'s and anywhere there may be moisture. Sturdy plastic eliminates rust worries. Rated at 10W, 8 ohms impedance. Complete with 3.5mm plug, lead wire and metal bracket. Dimensions: 130mm diameter.

Cat C-2705

PRE BUILT Just connect them up ding ideal for building into other projects. Into other projects. PRE-BUILT: Just connect them up DSE **Pre-built Audio Modules**

Microphone Preamp

Low impedance mic preamp suitable for most general purpose mics in the 250 ohms to 10k ohms range. Comes complete with a volume control pot and knob, just wire in as required. Instruction sheet included.

SPECIFICATIONS:

Input Sensitivity: 0.25mV. Input impedance: 10k ohms. Gain: 55db. Output level: 150mV. Freq response: 20Hz to 20kHz. S/N Ratio: 55dB. Distortion: 0.2%. Supply: 20-24V DC. Size: 89 x 15 x 35mm. Cat F-4154



15W Audio Amplifier

Fantastic for PA, modulators, inter-coms, etc etc. Multi-tapped output tranny suits 4-16 ohm speakers, huge 15W peak output (10W continuous) from a 12V supply. Ideal for car use, too.

SPECIFICATIONS:

Power output: 15W max. Supply: 12-15V DC, 1.8A at maximum output. Input: 10mV for rated output (also has high level input). Input impedance: Approx 15k ohms. Output impedance: 4-16 ohms. Freq response: 300Hz-10KHz. Size: 100 x 60 x 35mm.

Stereo **Preamplifier**

Complete, ready-to-connect RIAA phono preamp, ideal for use with amp modules or your own stereo amplifier. Takes supply direct from most amplifiers - 28 to 32 volts. Ideal for converting an old ceramic or crystal turntable to magnetic operation.

SPECIFICATIONS:

Freq response: 20Hz-20KHz ±1dB RIAA. Voltage gain: 35dB. Input sensitivity: 2.8mV. Input impedance: 200k ohms. Output level: 150mV into 50k load. Distortion: 0.2%. Size: 90 x 50 x 22mm.

Cat F-4152



5W Audio Amplifier

Don't need all that power? Smaller module has 5W peak rating (3W cont) with extended frequency response and lower supply rail. Think of the uses: Intercoms, megaphones, modulators, radio amplifiers, etc etc.

SPECIFICATIONS:

Power output: 5W max, 3W cont. Supply 9V DC, 0.9A maximum. Input: 10mV for rated output. Input Impedance: Approx 30k ohms. Output Impedance: 4-16 ohms F-response: 70Hz 001 30mm.

Cat F-4105

\$**24**95



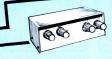
A TYPICAL PA SYSTEM



MICROPHONE Uni-Directional Cardioid Mics are preferred such as Cat C-1050.



AMPLIFIER Use a solid state AC/DC Amp such as Cat F-2035



OPTIONAL MIC MIXER & PRE-AMP Use to attach additional

recorder, Mics, tape tuner, etc. Cat F-2272



SPEAKER Attach one or more horn such speakers, Cat C-2718





DSXpress: 17 years reliable mail order service

CAR HI-FI CAR HI-FI CAR HI-

ASPEC

A new name in performance car sound: but one of the biggest names overseas.

It's a name you'll hear much, much more of in the future — because it represents outstanding value for money!

Check out the specifications of ASPEC and compare them to any other brand: you'll find that ASPEC outperforms any others in their price range!

ASPEC car hi fi: exclusively imported and

distributed by Dick Smith Electronics.



ACR-150EX COMPUTERISED TUNING/AUTO REVERSE AM/FM RADIO CASSETTE

Push button luxury! This unit is packed with features to leave you free to do the driving while enjoying true HIFI quality sound. The only thing it doesn't do is take the cassette out of the glove box for you. Features computerised station memory 6AM/6FM. Auto seek & scantuning. Auto reverse. QPS. DNR. Metal tape select. PLL freq. synthesizer tuning. DX/Local select. Full illumination. 3 colour display of output. The LCD digital display lets you know the station and mode at a glance.

With separate loudness, bass and treble controls gives you complete control over the massive 25W/channel. Like having a butler in the car with you! Cat A-6000

Dimensions 178(W) x 50(H) x 140(D)mm

\$399



ACR 80EX AUTO TUNE AM/FM RADIO STEREO CASSETTE

Fantastic value! Bring live music into your car without the crowds. This high power auto stop cassette radio has 12 station memory (6AM/6FM) so there's no need to fiddle with knobs while you're driving. With bass/treble, stereo wide and loudness controls you have complete command over your-favourite tune. Features seek and scan auto-tune, huge 25W/channel, DNR, DX/local, Full illumination

and three colour level display. The FJ'll wonder what happened.

Cat A-6005

Dimensions 178(W) x 50(H) x 140(D)mm

299



ACR 60 STATION FINDING AM/FM RADIO STEREO CASSETTE

Forever leaving the tape running? This auto-stop cassette/stereo radio is just the thing! Computerized station memory (6AM/6FM) and auto seek and scan makes station choice easy. Features Metal tape select, DNR, PLL frequency synthesizer, IAC, soft muting, full illumination, loudness control, balance control, line out. And much, much more! Your friends will be envious and they won't believe the price!

Dimensions 178(W) x 44(H) x 140(D)mm

^{\$}199

SPEAKERS SPEAKERS SPEAKERS



608 ET 3-WAY SURFACE/FLUSH MOUNT SPEAKER SYSTEM

Exceptional HIFI quality form these beautifully designed and constructed 3-way speakers. If you get them in your car you'll never want to get out. With a huge 40W max power capacity they'll bring realism into your music. Featuring a frequency response; 80-22000Hz. 136mm woofer, 66mm midrange & 57 tweeter. All adding up to unbelievable value in a car speaker system. Cat A-6976



RDM 670 3-WAY 4-SPEAKER OMNI SPEAKERS

Living room sound from the back seat! This 3-way 4-speaker system offers the ultimate in car hiff sound reproduction. Easily mounted and only 68mm deep so they can be placed almost anywhere in your car! An enormous 60W max power capacity and a frequency response of 70-20000Hz gives a full crisp sound. All this and incredible value too! Cat A-6970

FI CAR HI-FI CAR HI-FI CAR HI



AR2000 AUTO STOP CASSETTE/AM-FM STEREO RADIO

Fantastic sound quality, reliability and looks, all rolled into one! You can stop looking in the mirrort This auto stop cassette radio is all you need in a car sound system. Features like; locking fast forward and rewind, loudness control, Stereo/mono/metal tape select, tone and balance control and LED indicators all go to make this one of the best value for money units around. Cat A-6015

Dimensions 178(W) x 42(H) x 120(D)mm **S**



AP850 AUTO REVERSE CASETTE PLAYER

Already have a good radio but would like a a cassette as well? Here's the answer! A superb auto reverse that lets you consider the road while it handles the tapes. All the things the big ones have; metal tape select, locking fast forward & reverse, loudness, tone and balance controls, tape direction and loudness/metal indicators and heaps more! Can be mounted in or under dash. Economy plus!

Dimensions 140(W) x 42(H) x 176(D)mm



Batten down the hatches, this is likely to blow your top off! A 100W power amplifier with 7-band graphic equaliser to give your car system as much push as you'll ever want. And what's more you'll have the perfect control over what you're hearing. Includes 4-channel output at 20-20000Hz, 7 band graphic equaliser, left and right 6-LED output level indication, fader control, power defeat switch, full illumination and volumes more! All this at a price which makes quality hifi easy to have and a pleasure to own.

Cat A-6670

Dimensions 140(W) x 35(H) x 175(D)mm

ASPEC

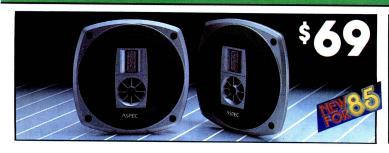
Audio components that

make your car more

exciting to drive.



SPEAKERS SPEAKERS SPEAKERS



DM543 3-WAY SUPER SLIM DOOR MOUNT SPEAKER SYSTEM

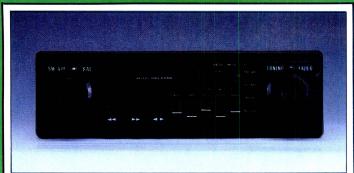
Beautifully crafted, ultra thin door mounted speakers giving true hifi image. With 30W max power and frequency response 90-18000Hz these give quality sound reproduction without the usual hefty price tag. Easy to mount and only 30mm in depth so you can fit them almost anywhere. Cat A-6972



DS401 DIN TYPE DOOR MOUNT SPEAKERS

For replacement or your new cassette these speakers offer excellent value! Door mounting type with a power capacity of 30W max and a mounting depth of only 32mm. Functional design makes installation a breeze. While the sturdy construction means a trouble free life. And bargain priced as well! Cat A-6974

FI CAR HI-FI CAR HI-FI CAR HI-



Digital Readout Car Stereo Sound System with Graphic Equaliser!

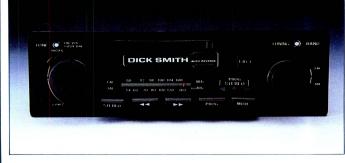
Unbelievable value! This amazing machine has a stereo tuner, tape player, graphic equaliser, clock and a massive 25 watts per channel power to blast you through the rooft You have to hear it to believe it! AM/FM stereo has digital frequency read-out and cassette player is auto reverse for convenience. Then top it off with a 5 band deluxe

graphic equaliser (to 'contour' the sound to the interior of your vehicle), front/rear speaker selection, fader control and LED digital clock! All this is contained in one magnificent 'in-dash' unit which looks like you spent a fortune! What more could you possibly want?

● AM/FM Stereo Radio & Auto Reverse Tape

Powerful 25 watts per channel.

Fits standard dashboard cut-out. Cat A-6488



Two In One! FM/AM Radio/Cassette

Fantastic sound and looks, along with proven reliability what more could you ask for in an auto reversing car cassette stereo and AM/FM radio combination? Features include: Full auto Reverse Mechanism, Fast Forward and Rewind Lock, Tape/Stereo Running indicators, Stereo/Mono Switch, Mute Switch, Tone/Balance Control Switch and Universal Adjustable Shafts (will enable this one to fit the mini AND the Rolls!).

Specifications: Output power... 7W max. per channel. Speaker Impedance... 4 or 8 ohms. Dimensions...44(h) x160(w) x 125(d0mm. Weight...1.4 Kg.

Gutter Grip Antenna

Twin telescopic rods of about 950mm each pull in those weak signals. Attaches to the gutter of your car very easily. Comes with about 1.9 metres of lead and plug. Very popular antenna in Europe. Cat. A-7320

AM/FM Mini Rubber

This is a very flexible rubber antenna that is ideal for both AM and FM. It is only 390mm high. This antenna will not rust or break.

Mount on the cowl. Cat. A-7345

ock Down Antenna

The ever popular lock down, 5 section The ever popular rock down, 5 state key. Underhang is 330mm. Cat. A-7300 \$950

Electric Antenna

A dash mounted switch enables you to raise or lower this antenna from inside the car. Works on both 12V DC negative or positive earth. Requires 320mm clearance below cowl. Slipping clutch ensures no burn outs Cat. A-7360

More Antennas

Universal Top Cowl

Can be mounted virtually anywhere-requires 25.4mm mounting hole. Three section \$750 telescopic with lead and plug. Cat. A-7340

Deluxe Roof Antenna

Just like those sporty Italian cars - you too can have a roof mounted antenna. Has spring loaded base and adjustable length plus you can angle the antenna to suit your requirements. Great for FM. Cat A-7306

To suit specific models:

Mazda pillar Cat A-7325 \$9 50 Cat. A-7335 323/Laser Cat. A-7330

metre Car Antenna Extension Lead Fully compensated (low signal loss) 4 metre lead. Complete with plug on one end and socket on the other. Ideal for when your new antenna has a lead that is too short! For rear mounted antennas. Cat. A-7452 \$495

metre Car Antenna Extension Lead Exactly the same as the above lead only this one is 1 metre in length. Ideal for short runs. Cat. A-7450

Standard Speaker Grille

130mm diameter to suit most round speakers. Ideal for boat /van speaker fitting to walls. With metal rim for ease of fitting.

Budget Stereo Speakers Rear shelf mount

Mount them anywhere...on the real parcel street, Now a brand new model with even better performance: huge 15W maximum power rating; with Mount them anywhere...on the rear parcel shelf, from the roof - you name it! deluxe ceramic 84g magnets for great sound. 4 ohms impedance, suits almost all car hi fi systems. **■ PAIR**

Cat A-6980

Flush Mount

Standard 130mm diameter speakers with soft padded grilles, as used in most car stereo systems. Suit standard large cut-out (eg. below rear parcel shelf) - 10 watts maximum, 5 watts nominal, 4 ohms. Extra large 140 gram magnet. **PAIR**

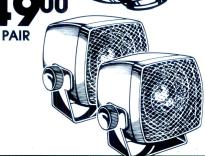
Super thin flush mount Car Door Speakers

Super thin type for mounting in door or kick panels, etc. Heavy wire mesh for maximum protection. 4 ohms impedance, 100mm size suits standard cut-out found in many Japanese cars. Handles up to 15 watts. Complete with mounting hardware. Cat A-7050

Mini Brutes!

Wow! What a performance from speakers so small! They'll handle an amazing 30 watts yet measure just 100mm square! Absolutely superb in vans. 4WD's caravans etc. very elegant appearance with their protective metal 'grille' (saves a damaged speaker!). Supplied with 3 metres of connecting cord at no extra charge. Brackets included. Cat. A-2380





We bulk buy . . . and you save \$\$\$!

FI CAR HI-FI CAR HI-FI



Auto Reverse Stereo Cassette.

What power! What performance! What convenience! That's our incredibly popular auto reverse stereo cassette . . . thousands of happy owners can't be wrong!

Just the thing when you already have a car radio - and this beauty means you can be rewinding tapes without having your radio turned off. Try doing that with a combination cassette/radiol
It really packs a wallop: 20 watts per channel of pure sound muscle, with one of the

most reliable cassette mechanisms you'll find anywhere, with its simplified no-belt mechanism.

And it's designed with safety in mind too: not just auto reverse - it has locking fast

forward and rewind so you don't have to hold a button down.

Suits 4 and 8 ohm speakers.

Size 120 x 48 x 166mm. Cat A-6486



Mini Car Cassette

If space is a problem, the DSE Mini Cassette Car Stereo Player won't be! Suits under dash or on transmission hump mounting (supplied with mounting bracket), plus mounting and wiring instructions to make the job simple - even if you have two left thumbsl

Tiny size (just 110 x 160 x 46mm) means it will fit in just about any space - and it pushes a very respectable 8 watts max per channel! Slider controls and auto stop mechanism makes it perfect for the car: much safer than

High Powered Speaker

rear volume separately for maximum comfort and sound quality. This amazing stereo fader controls two pairs of speakers up to 25 watts. Complete with facia mounting plate & cable. Cat. A-7834

CONTROL

∃©

REAR

1©

Capacity - 10 watt maximum Control your sound so

that it comes from either the front pair or the rear pair of speakers or both at once.
Easy to install. Cat. A-7832

ONLY \$ 795

Stereo

Fader

Control

other controls!
• 16Watts maximum

Fader We don't have to tell

about the magic of 4 speakers surrounding

you in your car! But you need this fader control to adjust the front and

STEREO SPEAKER

O

⊕

- Auto stop mechanismIC circuitry for reliability

Cat A-6485

Quality sound from these Co-axial speakers

Co-axial speakers have the excellent bass response of dual cone types PLUS a fantastic top end range achieved through a tweeter that is suspended across the main cone. They have a large 280 gram magnet and are rated at 4 ohms. They will suit most in-car systems. Hardware, mounting template and deluxe grille are included in the price. Cat A-7000

4WD Van/Truck Speakers

For those with just a little more space (not much more!) try these superb two-way 8 ohm enclosures. Extremely robust construction (made from aluminium), measure 120 x 120 x 190mm, and handle up to 35 watts. Freq. response 35-20,000Hz. Cat A-2375

Quality speaker replacements

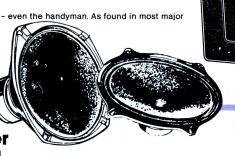
Ideal for service centres, radio installers - even the handyman. As found in most major

brands - pick the type you require. All have dual impedance -

4 and 8 ohms - suits any system.
130mm round (The most popular of all)
Cat A-7145 \$7.50 Each

150 x 100mm oval (With Ferrite magnet)
Cat A-7130 \$5.95 Each

180x 130mm oval (popular oval type)
Cat A-7135 \$8.50 Each



50 watt 3 way Speaker System

Stereo sound in your car is unbeatable and these car stereo speakers not only sound

great but look great. The Dick Smith FX-16 is a 3-way, 3 speaker system and is capable of handling up to 50W for those high powered systems. They are incredibly easy to install - with the quick connect wires, no soldering or tools are required. They also come with detachable brackets so they can be mounted horizontally or vertically.

● Blends in with any decor ● Suit most in-car systems ● Top quality sound

Latest attractive gun-metal finish

SPECIFICATIONS: Speaker units - 4 inch high compliance woofer, 2½ inch cone squawker, 2 inch twin mini dome tweeter. Cabinet - sealed enclosure, impedance 4 ohms, nominal power 20 watts each, maximum power 50 watts each. Cat A-7082

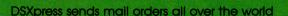
Stylish Slimline **60W Stereo Booster** with Graphic Equaliser!

Your car is about the worst listening room imaginable. No wonder so may car stereos sound awful! Now! you can 'contour' the sound to make up for your vehicle's interior and boost its power up to a huge 30 watts per channel with this

attractive Graphic Equaliser/Stereo Amlifier. Now you're talking! Has 7 individually adjustable frequency bands - up to 12 dB cut or boost in any band. LED level meters for each channel show power output and 4 speaker front/rear fader control for 'all around' sound. You won't believe the difference this equaliser can make! Specifications: Frequency response... 35-25,000 Hz. Crosstalk... 45dB. Power Source Voltage... 11-16VDC (neg. earth). Dimensions...155(w) x 22(h) x 140(d)mm. Weight... 950g. Cat. A-6666

Suits 4 & 8 ohm System... Just connect into your speaker wiring!

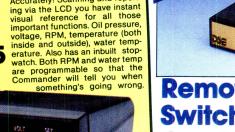




CAR ALARMS/BITS & PIECES

Car Commander-Tells you what's happening under the bonnet!

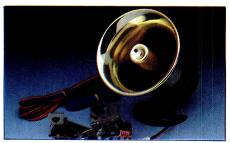
Now! Sophisticated control and monitoring of your cars funct-ioning is here! The Car Commander tells you what's happening under the bonnet. Quickly and Accurately! Scanning and reporting via the LCD you have instant visual reference for all those important functions. Oil pressure, are programmable so that the Commander will tell you when





Remote **Switched** Car Alarm

TOP CAT in the alarm stakes! This new remote switched alarm gives you a current sensing alarm with encodable transmitter key so you know nobody but you can switch it off. Features include; Instant boot & bonnet trigger. Remote switching with TWO transmitter keys. Ignition cut-out. Battery back up capability (in case they cut the power). 110 dB siren. Manual override. And it gives three beeps when you turn it off so you can find your car in that crowded car park. Features like this would normally cost three times as much!







CURRENT SENSING ULTRASONIC CAR ALARM

Alarm sounds when anything electrical in the car is used (interior light, brakelights, ignition etc.) One of our most popular models. Features built-in exit and entry detays and comes with complete instructions and wiring. Installed in less than an hour this is secure protection for one of your most valuable possessions Cat. L-5090

CAR ALARM

Protect both your vehicle and its contents with this latest alarm from Philips. Using the Doppler principle detects any movement in the car and sounds the alarm. Very reliable! Features adjustable entry delay and sensitivity control; boot and bonnet switches also included. It's easy to fit as well! Cat. L-5082

BIKE ALARM

Proud of your bike? Don't lose it to a stranger! With this compact alarm your bike is safe anywhere. Fits easily to any bike and gives a LOUD alarm if the bike is disturbed. Send them running and save your wheels. Cat. L-5088

MOTORCYCLE INTERCOM

At last! Talk with your pillion passenger while the bike is in motion. No more sign language. \$5950 Fits neatly under your helmet. Cat. F-1000

Battery Chargers Chargette

life, the experts say to charge your battery a little, but regularly. Chargette does just that with a 1A trickle charge that will keep your car battery al-ways ready. Plugs directly into power point. Complete with leads and clips

2ΣΕ

Cat. Y-3011



\$2600



High **Power** Charger 400

Now for both 6 & 12V batteries!

Get going fast! Completely charge a dead battery overnight with a high 4A charge. It could get you going in much less time. Complete with charge meter so you won't overcharge the battery. Top value!

Car Voltage Converters



6-12V Cat M-9592 24-12V Cat M-9594 **BOTH TYPES**

If you drive an old vee dub, or a truck, you'll know how frustrating it is when your vehicle supply voltage is different from the device's! Here's the solution – two models for both types of problem: a 6 to 12 volt, and a 24 to 12 volt. Output current 2A continuous, 3A peak. Suits car radios, stereos, CB's, scanners, att.

Hi Power 6V, 7.5V, & 9V in one!

Suitable for battery powered equipment that requires more than average current (eg larger cassette & radio units, etc.) Complete with 4 way plug and battery snap connector. 6, 7.5, & 9 V at a massive 800mA! Switchable polarity on output. Cat. M-9584

800mA Max.

Noise Suppressors Ignition Lead Suppressor

15 2202 65¢

Ignition Lead Suppressor
Connect anywhere in the HT to eliminate or reduce ignition noise. Simply cut centre (coil) distributor wire and screw cut ends into suppressor. Cat A-7904
Spark Plug Noise Suppressor
A spark plug cap with inbuilt 50K ohm resistor. Connect between plug lead and plug after cutting old plug cap off. Goes directly on spark plug.

Cat A-7908

Capacitor Noise Suppressor

95¢

The universal cure-all for autonoise, 0.5uF capacitor, designed to fit directly to either noise source or noisy device - or both. Bypasses AC (noisel) to chassis. Use on generators, alternators, coils, switches, water & fuel pumps, etc. Cat A-7902

Alternator Noise Suppressor



A capacitor type suppressor with three leads – one to earth and the other two between your alternator and car cassette, radio or CB. Reduces or eliminates the whine caused by the alternator.



Coax Alternator Suppressor

Heavy duty 0.5 uF 50 volt coaxial capacitor for extreme cases of alternator whine. Connect in series with the output lead of the alternator and earth the case. Will handle 60 amps. Cat A-7928

AR ALARMS/BITS & PIECES

Breath Tester

Don't take a chance! A low priced battery operated alcohol breath tester can save you a fortune- and your licence. Keep it in the glove box. Accurately calibrated to 0.05%. Simple, quick and convenient to use. Note: NOT a legal check. No liability

Cat. Y-4000



Digital Tacho Car Clock

Suitable for 4,6 & 8 cylinder cars. Digital display relays information quickly and ccurately. The day/night display automatically dims in low light: a great aid to safety. Universal bracket supplied for fast, easy installation. Tacho range: 100-6900 rpm (4 & 6 cyl) 100-3450 rpm (8 cyl)

THE LATEST ELECTRONIC





Why pay others to do the simple jobs you can do yourself!

- Lo Volts
- Lo Tach Hi Tach
- Hi Volts
- Dwell

That's most of the electrical testing needed to keep your car in top condition. Fits the palm of your hand, has multi-coloured scale for easy reading. Complete with heavy duty leads and clips and can be used on most 4, 6, and 8 cylinder cars. Pays for itself in just one tune up!



Timing Light

With this timing light you can actually cut down on fuel and maintenance costs. Brilliant XENON flash makes the old neon type look like a blown light globe! You need a timing light to tune your car properly, so why not do-it-yourself with the 'profess-ional' XENON timing light. Complete with 3 leads, heavy duty clips and FULL IN-STRUCTIONS.



The greatest boon to drivers since life insurance! Honestly parking has never been simpler than with this amazing new device. Beeper sounds when you are getting too close to another vehicle and gets louder the closer you get.
Waterproof transducers for all weather use. Easy to install. Even easier to use. Receiver module plugs into cigarette lighter socket. Comes with full instructions Cat. A-8520



ALARM DETERRENT STICKER

Brightly silk-screened inside adhesive sticker for your car, home, etc. Great for warning off intruders: they're more likely to go to easier pickings! They don't know you haven't even got an alarm. got an alarm...

Shock - detector switch

About the best form of protection for

motor bikes. Also great for 'tamper proofing' other alarms.

Vehicle Alarm Switch

N.C. under spring tension, will go open circuit when door is closed. Ideally suited to vehicles whose courtesy lights are not actuated by the doors.Cat. L-5256

at just \$ 4 95 PAIR

REMOTE PAGING

or have you?

Cat. L-5310

The state of the s

GADGETS FOR YOUR CAR FLASHING ALARM LIGHT

Just like those the alarm people install. Flashes to tell the thief your alarm's switched on. Even if you haven't got one. \$4595 Comes with two alarm warning stickers. Cat. L-5097

FLUID LEVEL MONITOR

Protect your cars heating system.Comes with sensor unit for overflow tank from the radiator or the washer reservoir. You know when it's low: before damage!



With two keys for external control of car or home alarms. One hole mounting makes installation easy. Cat. L-5295

BATTERY MONITOR

Keep check of your battery. Coloured LEDS indicate rate of charge or discharge. Buzzer sounds if battery runs low. \$4 450 Mounts neatly on dash. Cat. A-8536

AMBER WARNING LIGHT

Revolving emergency signal light for car, truck or marine use.

Magnetic base for easy fixing to any metal surface. 3.6 parter coil cord & cigarette lighter plug. Cat A-8510 \$2250

HEADLIGHT REMINDER

Easy to install it reminds you when you've left the headlights on. No more flat batteries and push starts. Cat.A-8509

REAR WINDOW BRAKE LIGHTS

Safety first! Increases visibility by placing lights at eye level. Added warning to drivers behind. Easy to install with complete kit and instructions. Cat A-8525 \$**4 7**50

INTERIOR LIGHT DELAY

Delays interior light shut off when car door closes. Provides time to find keys and seatbelts. Turns off automatically. Easy to install on any 6-12-24 volt system. Cat. A-8532

FLASHING DASHING WARNING LIGHT

Easily installed in the dash, this one makes them think you've got a car alarm. The flashing red light will send them on to try the next one. 12V. Cat. L-5093



Latest technology

Don't give the thief a break - particularly if he's pinching **your** car! This fantastic alarm actually pages you and tells you someone is trying to take your car - up to several hundred metres away! And it will also warn if hit in an accident. Easy to install- Low price includes both alarm & pocket

beener Cat L-5095



Wow! Module and Beeper at only

Barrel Key Switch

For car or home alarms needing external switching. Two keys supplied with each switch.

The X.K. Radar Detector



Tiny size but what a

Traffic fines are costly these days so it pays to keep within the speed limit with the all new X.K. Radar Detector. Receives within the speed limit with the all new X.K. Radar Detector, Receives currently in use - CW, pulse stationary, moving, and gun type. And with all radartypes superheterodyne circuit you get extra-long range and very sharp selectivity to maininise false triggering. This superb unit features visual warning plus an electivity to road. Simply plug the detector into your cigarette lighter socket and you are ready to visor-and all hardware is included!

Cat. A-8502

CB RADIO CB RADIO CB RAD

Short on space? Short on cash? Check out the all-new

K40 Economy

Here's top value in CB. The K40 might be tiny in size and even tinier in price, but it's enormous in features:

Maximum legal power ●All 40 legal channels ●Digital channel readout
 Incredibly simple operation

If you want great value in AM CB, it's hard to beat the K40. And it comes complete with a quality mircophone, mounting bracket and full instructions.



we've even seen them on motorbikes! DOC Approval No. 249A049

ONLY

MINI POWERHOUSE!

Famous Midland 77-001 **40 Channel AM**

What a performer! From the world's leading CB manufacturer - Midland - comes this amazingly tiny 40 channel AM CB. It's just 160 deep, 120 wide and 35mm high - yet it packs the full 40 channels in with maximum legal power output! features a large green fluoro channel display plus strength/power meter. Cat D-1445

●Maximum legal power. ●Full 40 legal channels. ●DOC Approval No



When you want clear, clean communication

For business or pleasure - you can't go past UHF. It hasn't really taken off in Australia (at least not like 27MHz!) so there are plenty of clear channels up there. And UHF CB communication is FM - so it's clearer.

This UHF Tiger CB is made by one of the world's leading manufacturers, is fully approved by the Department of Communications - and features maximum legal power and all 40 UHF channels.



DICK SMITH HORNET II 40 Ch.AM/SSB

The latest in 40 channel CB technology! With the massive 12 watts p.e.p. output on SSB, this set meets the high DOC standard RB249A. The quality of the unit is even better than the high standard set by its predecessor, the Hornet 1, our most popular SSB 18 channel CB ever.

Specifications: Frequency Range - 26.965MHz to 27.405MHz Antenna Connector - PL 259 Controls - Channel selector, mode selector AM-USB-LSB, Squelch RF Gain Clarifier, Noise Blanker/ANL switch, PA/CB switch Illuminations - LED channel number light LED RX/TX indication Accessories - DC power cable with built-in fuse, microphone clip. Cat. D-1710 DOC Approval No 249A006



Hand Held

Fitted with the bushwalking and 'safety' channel 27.620MHz, this transceiver is light enough to take anywhere - just in case. Great for the rockhopping fisherman tooit won't take up much space in the basket, and could get you out of trouble. While not approved for marine use, in a genuine emergency you're allowed to use any frequency at your disposal - so it's a great idea to keep one of these in the boat Cat D-1102

DOC Approval No 242H0108

NO LICENSE REQUIRED

Pocket Com

This is THE transceiver for aspiring James Bonds or Dick Tracvs in our community Full 2-way transmission and a size that fits secretly into your pocket. A great gift for any child. Also ideal for the more serious use: a mother who wants to know what Johnny is doing in the backyard; for construction workers etc. Buy a few and start a spy ring! Cat. D-1101

Complies with DOC Specification RFME001



F006

IO CB RADIO CB RADIO

Car Radio/ **CB Antenna Splitter**

Why put on extra antennas when you don't have to? Use your normal CB antenna for your car radio too: Splitter box allows both to be used simultaneously. You can even transmit on the CB without blasting your car radio's input stage to bits! Cat A-7455



RF Signaliser

Inserts in antenna lead to give from --25dB to zero to +20dB gain. The gain lifts signals out of the mud while the cut stops them bending your needle. Switches automatically on transmit. Needs 12vDC 35mA. Cat D-3828



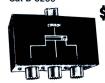
Remote **Communications** Speaker

Great for the car, home - in fact anywhere you need an extension speaker for your transceiver or receiver. 8 ohms impedance, supplied with cable and standard 3.5mm audio plug. Because of the larger (10cm) dia. speaker, you'll probably get much clearer sound too. Cat A-2451



3-Way **Antenna Switch**

If you have more than one antenna or use more than one rig then this switch will save you swapping by hand. Handles 150 watts at 30MHz: ideal for base or mobile use. Cat D-5206



TVI TROUBLES? TV set **HI-PASS Filter**

Actually attaches to unit behind affected by CB or amateur radio. Will attenuate frequencies below 50MHz making it ideal for TVFM sets. Simple to connect between TV set or FM tuner Cat D-7084.





Connected in antenna lead, can be adjusted to virtually eliminate all mismatch between antenna and transmitter. Handles 100 watts, 50 ohm impedance, PL-259 connectors. Cat D-5512



Antenna Mount **Roof Rack**

Here is the ideal unit for the person who doesn't want to drill a hole in the vehicle roof and doesn't want the slightly directional effect sometimes obtained from gutter or bumper mounting. This fully plated bar mounts easily on virtually any car roof and will withstand high speeds and rough roads. Mounting plate with 16mm hole takes most available antennas and mounts. Cat D-4520



CB Spcres

DC Power Leads:

DC Power lead for Midland transceivers (suitable for a huge range of other transceivers with 3 pin plug). Cat D-9001



DC Power lead for Dick Smith transceivers or other transceivers with 2 pin plug.



Antenna Value

1. ½ Wave Vertical Base Antenna
Brand new design for 27MHz base stations. Very easy to erect, and very easy to SWR in. Not just for CB - also ideal for surf clubs, boating clubs etc. And easily adapted to 28MHz for amateurs. Cat D-4427 \$79.00

2. 27MHz Gutter Grip Antenna

Simply clips onto the rain gutter of most vehicles. Features no hole installation and can be installed

3. 27MHz Magnet Base Antenna

Centre loaded stainless steel construction with

 A. 27MHz 1/4 Wave Whips
 Your choice of stainless steel or fibreglass. Each is approx. 2.75m long. Ideal for marine or CB. Easy SWR adjustment. Mounts available to suit your requirements. % 24 tpi.
 Stainless Steel Cat D-4415 \$25.00 ibreglass Cat D-4416\$25.00

5. 'Rubber Duck' Mini Helical

Very Flexible-perfect for handheld sets. Only 300mm long and is attached over the normal telescopic antenna when it is retracted and secured by a thumb screw. Great replacement Cat D-4629\$13.50

6. Hellcal Whip & Base
Our most popular CB antenna. 1.5m long, complete with co-ax cable and special base
Cat D-4076.......\$29.50

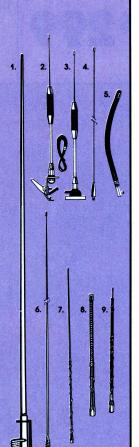
Whip only from above system. Cat D-4074 \$19.95

Just 1 metre long - with really great performance. Less wind resistance, less danger of being hit by low flying aircraft. Cat D-4072

8. Mini Mini Whip

9. Bush Bandit Adjustable Helical

Another one from Mobile Onel Top-loaded helical with fully asjustable top stub...
Great for use as a spear, too. Cat D-4420.....\$25.00



Swivel Ball Mount

Heavily chrome plated. Slanted for greater strength. Ideal for boats, vehicles, trucks etc. Cat. D-4502...............\$11.50

Steel Spring

Plated steel spring. Designed to take up to 3 metre whip. Will bend through 90° without breaking. Cat. D-4503 \$12.50

Lightweight Spring

USA %" x 24 tpi male thread to Australian female socket. Used for connecting USA %" x 24 tpi base with Scalar or similar antennas. Cat. D-4505.......\$1.99

Quick Disconnect

Enables you to move your antenna from its mount with an easy press and twist. Saves your antenna being stolen.

Cat. D-4501\$11.50

Antenna Layover

Heavy duty unit allows antenna to be left in three separate positions, vertical, horizontal or angled. Positions are easily obtained at the push of a button. Will not layover if hit. Cat. D-4506\$13.50

Universal Stud Mount

Accepts 9.5mm x 24 tpi thread and comes with mounting plate and ground lug. Plated steel and nylon insulated bushing. Mount requires 12 mmhole. Cat. D-4510\$3.40

Folding angle adaptor

Magna-base universal mount

A quality magnetic base - ideal for the company car where holes aren't allowed! Complete with 2m co-ax and PL-259 plug. Standard thread suits most antennas. Cat D-4515......\$32.50



MARINE ELECTRONICS MARI



The DSE

A VHF Marine Transceiver that links you to the normal telephone network while you are at sea! With features you'd pay \$\$\$\$ more for anywhere else. Look at these; All VHF international marine channels fitted. Maximum legal power (25W) with low power 1W - switchable to conserve battery power. Complete with wall mounting brackets, microphone, power cable and full, easy to follow instructions. Fully approved.

- All 55 international VHF marine channels fitted (no...) expensive crystals to buy!) in the 156 - 163 MHz marine band. Department
- Fully approved under Departm Communications Specifications RB274B. Maximum legal power output (25W) with low power 1W - switchable to conserve battery power
- required. 'Universal' mounting with front panel reversible to allow for any position.
 Endorsed for OTC's 'Seaphone' service (making
- telephone calls from your craft).
- Complete with wall mounting brackets, microphone. power cable and full instructions

Cat D-1401

DOC Approval No. 274BO33





ENDORSED BY OTC SEAPHONE TO BE LINKED WITH NORMAL TELEPHONE NETWORK



The top value DSE Hornet II Marine AM/SSB

Amazing value! The Hornet II Marine offers top range, top performance on the 27MHz marine band. SSB (single side band) gives you that extra punch, that extra range when you need it most. And for local work, the Hornet II Marine also has standard AM transmission - so you get the best of both worlds! Covers all legal 27MHz marine channels (plus provision for any future expansion) with no crystals to buy. And it has a very effective noise blanker and automatic noise limiter - so it's great on impulse noise. READY TO USE: JUST ADD THE ANTENNA YOU REQUIRE!

- All 9 channels fitted
- LED frequency readout
 Doubles as PA amp with optional horn speaker
- DOC Approval No. 244010

Don't leave

shore

without

one!

Cat D-1716

\$299



Super Economy AM Marine

Yes! This is the super economy model, ideal for the smaller boat. If you stay close to shore, this deluxe AM transceiver is all you ever need. Has maximum legal output power and is equipped with all current marine channels. There's even provision for any future ones. Complete with microphone, bracket and full instruction.

- All current marine channels
- Maximum legal power
- So simple even a child can use it! The perfect set for small boats
- DOC Approved: approval no 244029

Unbelievable! \$429
Yours for just

VHF Marine **Transceiver**

Amazing low

> price **DOC APPROVAL** No. 274C018

Cat D-1404

With 12 programmable channels: no crystals to buy.

Now your craft can have the unrivalled flexibility of VHF marine – without breaking the bank.

And because it's a hand-held, it goes where you go: take it home when you dock, take it in the lifeboat if you must ... measures a tiny 160 x 60 x 35mm (plus rubber duckie antenna).

Huge 12 channel capacity: more than enough for all local area work. And if you do happen to cruise the coast, you can re-program to suit your area. It's simple. Features:

le-program to suit your area. It's simple. Features:

■ 0.5/2.5W output power (switchable)

■ High sensitivity: better than 0.25uV
(12dB SINAD) ■ Capable of all VHF marine channels ■ Complete with Nicad battery & charger.

A top quality high power hand-held from Uniden: the world's largest manufacturer officers. The world's largest flantiacturer of 27MHz equipment.

All the power and performance of a fixed transceiver - in a transceiver you can take home with you. (It won't be pinched from your boat!) Maximum legal power, and all 6 channels fitted with 27MHz

marine frequencies. Nothing more to buy!

And you can connect a boat antenna and power for maximum performance if you wish: external antenna and power sockets fitted.

Doc Approved: No 242MO172 Also approved for CB use (DOC 249A022 with appropriate CB crystals

Cat D-1125



Medium power, medium price – but top performer! A new model, exclusive to Dick Smith Electronics, with a multitude of uses. Approved for bushwalking, etc with general frequency of 27.620MHz included in channel 1. Other channels left open for your choices. Great for fisherman, too: keep in touch

(just in case!)

Cat D-1106

DOC Approval No. 249A072

5W 6 Channel 3W 3 Channel 1W 3 Ch Safety **Transceiver**



Nice and small for the bushwalker, rock-hopper, fisherman or hiker to keep in the back-pack: just in case! Fitted with bushwalking frequency of 27.620, two other channels left open for your choice of crystals (take about ten seconds to fit!) Not normally used on marine band, but in an emergency you can use anything! Keep one in the tackle box! Cat D-1102

DOC Approval No. 242H0108

NE ELECTRONICS



Emergency Position Indicating Radio Beacon.

Your most valuable companion at sea! It could save your life! EPIRB stands for **Emergency Position Indicating Radio** Beacon. When you get into trouble, this transmits a signal on both the commecial and military emergency radio frequencies. Any aircraft on emergency watch (ie when they're looking for you!!!) within range would hear the beacon, and from it, work out your

position. It's absolutely essential on any craft going to sea (it's compulsory on many racing yachts!



Depth Sounder & Fish Finder

A MUST for all small craft - from a fishing dinghy to the QE2. Find out where the bottom is (thud) or where that rock is (splat). Or even where that elusive school of fish is! Simple to install, very easy to use - and you can quickly remove it so someone else won't while you're away from the boat.

LED display gives four scales up to 80 metres. Variable gain (sensitivity) control for minimum errors.

Supplied complete with through-hull transducer (may be mounted inside the hull instructions included) plus cable. Battery operated.

FLOAT BRACKET TO SUIT

For towing behind boat: no drilling necessary! Great for small boats.
Cat Y-3052 \$9.95

Cat Y-3050



Protect your boat with a DSE

Boat Alarm

Boats are pretty 'hot' property - and easy targets! This versatile and durable alarm for marine applications is perhaps the most complete boat alarm offered today! Comes complete with: High impact resistant strobe light. Electronic siren. 4 sets of magnetic switches for NO & NC applications. Two lock switches with brackets. Wiring and complete instruction. In addition the DS alarm has multiple protection zones so you can extend the system to meet your requirements... Great Value!



Protect your boatEasy fittingExpandable to suit your needs.

Cat L-5098

Cat D-1406

MARINE TWO-WAY ANTENNAS Man Overboard! 27MHz Helical: no ground plane required

MARINE HELICAL ANTENNA Now! A whip antenna for glass, wood & cement boats. This helical antenna doesn't need a ground plane. Helical whip complete with mounting base. cable & simulated ground plane. Great value when you're on the receiving end! Cat D-4070

27MHz Swordfish: half wave performer!

Made of tough, resilient fibreglass, this half-wave antenna doesn't need a metal 'ground plane': you can use it on grp, cement, wooden, steel - or any type of hull.

And it comes with our deluxe 'any-which-way' base (as shown below) which mounts perfectly on any angle. It has a quick release lever to lower the antenna for bridges, trees, marinas, low flying

Complete with base, co-ax cable and tuning box. Cat D-4071

Any-which-way' Base

This antenna base, as used with the Two Way Marine Antenna, can be used with any 3/8: 24 TPI whip antenna. It's strong and very adjustable with a quick release lever to lower the antenna for bridges, trees, etc. It can be mounted on any surface. Cat D-4057

VHF Marine Whip for 156 MHz

Antenna to suit VHF Marine Transceiver (D-1401). Also includes the special (D-4057) antenna base supplied - as seen above. Cat D-4016

Hand Held strobe

BY EVEREADY

MAN OVERBOARD! But where is he? With a waterproof strobe on his jacket, he's easy to spot from miles away. Intense white flash lasts for hours - a must for all ocean going craft (especially racing vachts!) Don't pay \$49 or even more. Huge scoop purchase means our price is way way below normal cost! Cat Y-1085

'Yachties' Electronic Stopwatch

Just the shot for races. timing starts, laps, etc, etc. Huge LCD display for instant recognition, handy size with neck lanyard included. Also double as highly accurate quartz LCD clock: you can use the stopwatch or lap timing function without losing



21:5 6

Standard transmit/receive pairs for

the popular 27MHz marine channels. Simply plug into the hand-held (also suit older style in-dash transceivers). 27.550 D-6055

Xtals for Hand

Helds

27.620 D-6062 27.860 D-6086 27.880 D-6088 27.900 D-6090

27.910 D-6091 27.940 D-6094 27.960 D-6096 27.980 D-6098

Australian Marine Radio Handbook This book

could save a life - yours!



Everything you need to know about selecting, fitting and using marine radio. Complete with maps, charts and times of monitoring stations, OTC's Seaphone service, Rescue organisations and much more If you have a boat of any type, you should own a copy of this book!

Cat B-9604

TV FM ANTENNAS TV FM ANTE

VHF...UHF...FM.. We've got the lot at low, low prices

NEED A ROTATOR?

If you want to tune in a number of channels, you'll probably get the best reception with a rotator. Then you can aim your antenna directly at the tower - or even find a position to minimise ghosting. You'll find two great rotators - ideal for TV antennas in the amateur radio section on page 73.

For boat, caravan, camper etc.

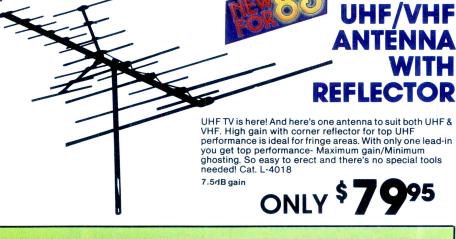


Go-Änywhere FM/TV

Here's a go anywhere TV/FM antenna that's small enough to be packed up and put in the camper or van. It even comes with a special 'gutter gripper' bracket for caravan use, plus a mini mast and 7 metres of 300 ohm ribbon. Single folded dipole for maximum performance over wide frequency range; suits horizontal or vertical mounting. Cat. L-4026

300 ohms impedance

\$**39**95



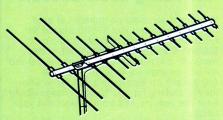


High Gain UHF TV Antenna

If you're finding trouble picking up the UHF stations, try putting up a new UHF antenna. Your problems could be solved - for less than \$30. And it's far less than 'getting the man out' to have a look at the supposedly crook TV set! Another Dick Smith quality import, this UHF antenna is designed to cover the entire Australian UHF TV band - when it is fully utilised. It provides high gain (10.4dB), with a very high front to back ratio (24dB) - very important on UHF. It also features a variable mounting clamp so antenna can be aimed precisely at the transmitter even from low down. Cat. L-4028

300 ohms impedance

\$2250



Combined UHF/ VHF Antenna

Why put up two antennas when one antenna will give you both UHF and VHF signals? One of our most popular antennas. Has the latest 14 element design which needs just one feed line. Suits 300 ohm ribbon. This one's just waiting for 0-28 to drop the '0'. Easy to install on existing mast. Comes complete with mast clamp. Great value for dual purpose antenna! Cat. L-4020

6dB gain

ONLY \$5995



Metropolitan High Gain

This antenna has proven to be our biggest seller. Extremely popular in the metropolitan areas and near fringe areas, because it has been designed to give maximum gain on channels 0,2,7,9,8 10. Complete with mast clamps, suits twin lead with its 300 ohms impendance. Use a balun if you want to use 75 ohm coax cable with this antenna. Cat. L-4022 9dB gain

\$**49**95

Metropolitan Ghost Killer

The largest model in our range. Of the enormously successful log periodic design, this broad band antenna has high gain, and high front-to-back ratio (very important in cutting out unwanted signals or ghosts from the sides or the rear of the antenna). It's the ideal antenna for all channel reception in the most difficult areas - even on the fringe. Cat. L-4030

9dB gain

\$7495



Covers all FM station Frequencies

3 Element M Antenna

If you want top performance from your FM tuner, you're going to need an FM antenna. But most FM antennas cost a fortune - so most people put up with the ribbon type. That's fine if you live close to the transmitter, but what if you don't? We have this 3 element FM antenna manufactured overseas, so it costs a lot less than other antennas. But its performance is just as good as antennas you'd pay twice as much for ... and more! Very easy to erect, light weight, and with 300 ohms impedance, suits almost all FM receivers. Try it: you'll be surprised how good FM sound is.Cat. L-4064

\$4995

V FM ANTE

Everything you need to mount your **Antenna**

8mm Turnbuckles

Get the correct tension on your guy wires. 8mm turnbuckle is 94mm long, standard hook and eye ends. Heavily plated for long corrosion-free life.



Wire Clamps

Grips guy wires tight: stops cables parting or fraying, too. Mini 'saddle clamp' assembly, holds wire up to 7mm.



Guy Wire

7 strand x 0.9mm, heavily plated steel guy wire for all antenna and mast support work. Breaking strain over ten tonnes Cat L-4564



per metre.

30mm guy rings

Takes either three-way or four-way guying. Circular (donut) style ring with holes for thimbles. Overall size 100mm diameter, suits mast diameters up to 32.5mm.



Cat L-4524

8mm Thimbles

Use wherever guy wires have to turn corners or tie off (eg on guy rings or turnbuckles. Makes the wire take a larger diameter, prevents chaffing and adds to

Cat L-4530



35mm Ferrule

Used to hold guy ring in place. Takes mast diameter up to 35mm, heavily galvanised steel tube 50mm long. Cat L-4526



30mm Guy Clamps

Simple saddle clamp to hold the guy assembly in one place. For maximum security and safety. Cat L-4528



cm Wallmount Saddle Clamp



28cm long, can be used for wall or barge mounting of vertical masts up to 5cm diameter. Complete with saddle clamp assembly. Cat. L-4152

69cm Wallmount



69cm long, used for mounting vertical mast sections up to 5cm in diameter. Complete with saddle clamp assembly.

Chimney Mount



This is a double arm, single strap, easy to mount unit. Complete mast mount assembly. Cat. L-4154

Barge-board Mount

Designed to mount any TV antenna from a vertical surface, barge-board, wall, chimney, etc. 139cm long. (Hot dipped galvanised to prevent corrosion.) Cat. L-4150



For holding two pieces at right angles: eg, mast pipe onto mount, or antenna onto mast pipe. U bolt & V clamp.

Standoff



Complete with standoff and strap assembly. Used for standing cable off mast sections. 8.8cm long. Holds ribbon or coax. Cat L-4512

Woodscrew Stand-Off

Designed for wooden walls, facias, window frames. etc. 19cm long, suits either co-ax cable or 300 ohm ribbon. Absolutely essential if you want minimum ghosting, minimum loss. Cat L-4511

Nail-in Cable Clamps **Ribbon Type**

Suitable for running flat ribbon cables on walls, skirting boards etc. Gives a neat professional job. Cat. L-4514

Coax Type As above but suitable for coaxial cable. Cat. L-4515



As above, but 25 in pack. About the right number for a proper installation. And look how much you save! Cat L-4516

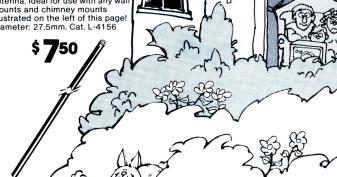
9 metre telescopic mast
Just what you need to get the TV antenna up above the roof, up above the power lines, up above the interference. Complete assembly – guy rings and thimbles included. Ready to put up and enjoy better reception.

Mast will accept our rotator (see page 73) if you want the best reception.



TV Mast Pipe (app. 2.4m)

This is a 2.44m mast section galvanised and rustproof. A conentional way of mounting your TV antenna. Ideal for use with any wall mounts and chimney mounts illustrated on the left of this page! Diameter: 27.5mm. Cat. L-4156



ANTENNAS TV. FM ANTENNAS



DELUXE VIDEO PROCESSOR

Disappointed by the fuzzy picture you get from some video tapes? This deluxe Video Processor lets you make the picture crisper and clearer. Dual 'Detail' and 'Core' controls allow optimum picture enhancement, plus a 'Stabilise' control to let you get stable pictures from Copyguarded tapes. 'Mode switch' lets you bypass all processing to check the original signal.

Takes the direct video signal from your VCR, and provides three processed video outputs for distribution. Handles audio, too. Includes a high-quality RF modulator with output on Australian VHF channel 1 or 2 (switchable).

Elegantly styled case features stained wooden ends. Suitable for both VHS and Beta. Needs 12V/150mA DC power supply - our M-9526

supply is ideal. Cat Y-8510

GREAT \$ **4 4 950**



What convenience! The Dick Smith Electronics VHS tape rewinder means no more waiting for the tape to rewind before you can start watching the movie! It's great when you want to rewind a tape ready for recording, too: it's much, much faster than using the VCR to rewind. And the VCR itself gets less use – so it could last longer! Tape automatically ejects when fully re-wound; operates on 240V and is activated only when you put a cassette in. Suit VHS tapes only.

Cat Y-8515

S VIDEO HEAD CLEANING TAPE Non - abrasive (fluid) type.

Cat. C-7100

Essential for the video buff! The video head cleaner will effectively clean the heads on your VCR, eliminating hiss/noise and improving picture quality. Comes complete with cleaning fluid and instructions. See the difference! (Suits VHS machines only).

75 ohm fittings

Mounts on wall or skirting board. Mount a number around the house for portable TV viewing. Cat L-4504



In Line Joiner 'Two-way' socket



10 up \$1.10

Panel Socket P-2040 1-9 10 up \$1.10

Plastic Line Socket

P-2031 .. 10 up 95¢

Plastic Line Plug

P-2021 ... **1-9** ... 10 up 60¢

Metal 75 ohm TV coax line socket

P-2030 ...1-9 ...\$ 4 70 10 up \$1.60

No soldering required

Metal 75 ohm coax plug P-2020 ... 1-9 ... \$ 4 50 10 up \$1.20

No soldering required

Wall Plate with 75

ohm socket

Plastic wall plate with built-in 75 ohm TV connector. Can also be used as a 75 ohm splitter, Cat P2042

\$350 10 up \$3.25 BNC Line Plug \$

P-2210 ...**1-9** Suitable for RG58RU cable 10 up \$2.00

BNC Panel Socket Accepts P2210

P-2220 ... 1-9 ... 10 up \$2.00



300 ohm fittings **Ribbon Wall Plug**

and Socket Designed to mount on wall or skirting board.

Complete with mounting screws and plug. Cat P-2080 10 up \$1.85

300 Ohm Piug

An individual plug as used in the above socket. Cat. P-2082 10 up 90¢



Economy Indoor Antenna

referrese

If you're lucky enough to live in a strong signal area, you'll probably get by with one of these spiral antennas, even with colour Don't expect miracles of you're out of sight of the tranmitter, (it is quite probable that you will require an outside antenna like those on page 60.)

Cat. L-4010

300 ohms impedance

Indoor Ribbon TV/FM Antenna

A simple flexible dipole antenna suitable for both FM and TV reception. It is best suited to primary reception areas where it is unnecessary for a full scale outside system. It is ideal for use in situations where space is at a premium. Simply connect to your terminals, find the best reception position and then secure with thumb tacks or adhesive.

Cat. L-4060

300 ohms impedance

JUST

IV, FM ANTENNAS

V CABLE

300 Ohm Flat Ribbon

Low loss 300 ohm ribbon for good signal areas.

Cat. W-2070

per metre 22°

Bulk Price for 100m roll

75 Ohm Coaxial Cable

Low loss coax, ideal for colour installations. Black coloured for long life.

Cat. W-2080

per metre 45¢

Bulk Price for 100m roll:



Own a video cassette? Want to dub tapes? You must have one of these amazing cable sets.
Doesn't matter what type...VHS,
Beta...Umatic...Philips... this suits
any to any! Comes with 2 metres audio/video cable with phono adaptors to suit UHF (PL259), BNC, 6.5mm,5 pin DIN and 6 pin DIN. Every video enthusiast should have one! Cat. W-1287

75 ohm TV cable

2m quality 75 ohm coax fitted with standard TV coax use in flats, units. etc. with wall outlet Cat. L-4506



2 metres quality 75 ohm coax fitted with BNC plugs at many of the VCR's available. Why make one and risk shorts when it's already done for you? Cat. W-1285





Mast Head Amplifier Poor signal? Lousy picture? Don't put up with a moment longer. The Dick Smith masthead amplifier

can make an unbelievable difference. Amplifies the signal right at the antenna - so you can use a longer lead-in too. Latest model has even more advanced circuitry for optimum performance. Cat. L-4200

40-400MHz bandwidth (Covers VHF TV PLUS FM radio.

24dB gain 75 ohms input and output (suits co-ax cable)

12V AC powered Zero gain at 27 MHz (ideal for CB interference suppression!) Includes power supply to suit

ONLY

Splitter/Couplers

If you want to use one antenna on several sets, or use two or more antennas on the same set, you need a splitter/combiner. Connected one way they act as a splitter (one antenna in, multiple out); reverse the connections for a combiner (several antennas in

4-way Splitter for 300 ohm ribbon

Handles either colour or black and white TV with absolute minimum loss of signal strength even when all sets are operating at the same time. Compact plastic case can be mounted at

any convenient location near antenna lead. 300 ohms input/output impedance. NOTE: If all inputs are not being used at once, a 330 ohm resistor should be placed across the

unused outputs. Covers 50-890

Cat L-4220 (10 up ...\$5.00)

2-way 300 ohm splitter

As above but 2 sets only. Covers 50-Cat L-4218 (10 up ...\$2.90)

4-way 75 ohm splitter

snap lid. It features nickel plated easy to connect screw terminals. It can be mounted in any position. Used to operate up to 4 TV

50-890MHz Isolation 30dB NOTE: If all outputs are not being used at once a 68 ohm resistor should be placed across the unused outputs.

Cat L-4474 (10 up ... \$5.10)

This splitter is housed in an attractive plastic box with

sets from one aerial when using 75 ohm coaxial cable. Covers

Indoor 75 ohm Splitter

Similar to L-4474, but for two sets only. Covers 25 dB. Insertion loss 3.5dB. Cat. L-4472

10 up \$3.80

\$ 125

2-way Co-ax Splitter

A nifty little splitter/combination for indoor use. Fitted with standard TV co-ax plugs & sockets just plug it in without any messy wiring. Normally used for 2 TV sets from one antenna, but can also be used 'backwards' to combine two antennas into one TV set. Cat L-4270 10......\$1.60



Baluns

These are special radio frequency transformers used for converting unbalanced or mismatched lines and ter-minals to balanced and matched operation. Used in aerial-set or set-aerial conversion from 300 ohms to 75 ohms (or vice versa).

Outdoor Aerial Balun

This balun is designed for outside use with your existing aerial to allow you to convert to coaxial cable. 300 ohm to 75 ohm. It comes complete with coaxial plug, connector and cover. Cat L-4452 10 up......\$2.25

TV Game Balun

Makes it easy to use your colour TV game with a black and white set. Spade lugs make connections simple, no soldering required. Excellent value. Cat. L-4454 10 up \$1.75



Universal Balun

The universal balun - has 300 ohm screw terminals & 75 ohm



TV Game Computer Switch Box/Balun

If you have a TV game you're probably getting sick of swapping cables everytime you want to use it... Problem solved with this switch box/balun! Switch between 2 inputs - and it gives you the choice of 75 300 ohm input. Cat L-4500



75-300 ohms **Indoor Balun**



This balun correctly matches 75 ohms coaxial cable to the 300 ohm terminals of your TV set or FM tuner. Covers 50-890 MHz with low insertion loss. This unit can be used as an outside aerial balun if made weatherproof with plastic tape etc.Cat. L-4464



The output signal from video recorders is The output signal from video recorders is often too low for optimum performance on many television sets. Or you may find degradation when trying to run more than one TV. The solution: just connect this nifty little inline amplifier between your VCR & TV. It boosts the signal level to give clearer, crisper viewing. And the best part is it simply plugs in to your existing system.

Also ideal for boosting signal on long co-ax feed lines.

Cat L-4202 • 5 - 950MHz

A TOR

10dB gain
 Requires just 9V at 100mA (our M-9525 is ideal).

ONLY \$ 2

COMMUNICATIONS RE

Buy now, pay later...Any of our stores will be glad to discuss easy term payments (to finance company

approved applicants).

Just ask!

FRV-8800 VHF Frequency Converter

Fits right inside case - complete with its own telescopic antenna. Frequency range 118 -174MHz Cat. D-2823

FRA-7700 Active Antenna

Great for flat dwellers! No need for an outside antenna and preamp will pull in stations you didn't think possible! Cat D-2845

FRT-7700 Antenna Coupler

Ensures best performance from all types of antennas. A must if your antenna is not low impedance. Cat D-2843

FRG-8800 DC Kit

Allows operation of your FRG-8800 on 12V DC. Great for field operation, monitoring, etc. Cat. D-2822

\$750

All band, all mode general coverage receiver – FRG-8800

All mode/selectable IF&BW **Multi Scanner** 8 Bit Microprocessor S/SINPO Graphic Indicator **Dual 24-hour Clock CAT System Computer Control** Wide-band VHF option

Here it is: the receiver everyone's been waiting for. It's the brilliant new FRG-8800 from Yaesu - the world's leading manufacturer of amateur radio equipment.
With specifications to more than match its outstanding looks,

the FRG-8800 is a worthy successor to the rest of the 'frog' series. But this one has more: much more: 10 memories inbuilt - nothing extra to buy (they even remember the mode and filter!) And digital frequency entry as well as standard knob tuning. Provision for a VHF converter inside the receiver. CAT control capability. And much, much

Ask for a copy of the free FRG-8800 colour brochure.

Two models to choose from:

FRG-8800 HF

Cat. D-2820 150kHz to 30MHz.

FRG-8800 SW 2MHz to 30MHz Cat. D-2821

\$749

AM/FM/CB/SW/VHF with inbuilt Radio D.F.

Top value for the avid radio listener - or the boat owner who wants to know just where he is! This quality radio receiver has a built-in radio direction finder to pinpoint your position against am radio stations.

Plus you get 6 bands including all 40 CB channels plus shortwave AND VHF! Operates from either mains or batteries (not inc.) and can even double as a PA amplifier with optional micrphone! You also get not just one, not two but three fferent manuals - including a full SW

- listening guide. AM Broadcast Band FM Broadcast Band
- CB Band (26.94 27.46MHz)
 VHF Bands (59 218MHz)

 Shortwave Bands (3.9 - 12.5MHz)

Cat D-2832

Air Band VHF Radio

You've probably wondered what goes on, what pilots and air traffic controllers talk to each other about... Wonder no more! This budget aircraft band radio tunes the entire band, so you don't miss a thing. It also coves the normal AM broadcast band too, so you won't miss out there either! Operates from 4 penlight batteries (supplied) with telescopic whip antenna for

aircraft band and internal ferrite rod for broadcast band.

Specifications: Ranges: 530 - 1600kHz; and 108 - 174MHz. Utput power; 450mW max. Speaker; 6.4cm. Power source; 6V DC (4 penlight cells). Circuitry; 10 transistors and 7 diodes.



Size; 22 x 11 x 5cm.

Cat D-2836

For the Short Wave listener:

Find out all about this fantastic hobby!

Get into the world's fastest growing hobby . . . scanning! Dick Smith's Australian Radio Frequency Handbook will tell you what's what, and even more importantly, who's who - and where to find them! Cat B-9600

MW/FM/SW 6 BAND

The economic receiver with the deluxe features. Like 6 bands covering standard AM & FM broadcast PLUS 4 shortwave bands: 2.3 - 4.1MHz, 4 - 7.5MHz, 7.5 - 15MHz and 15-26MHz. And a protective 'soft feel' carry case. Slide switches and controls (just like it's big brother at right). And best of all, it comes complete with quality stereo headphones - at no extra charge! Compare the features;

compare the quality. You won't buy better!

Cat D-2835

MW/FM/SW 9 BAND

Tune in to the world brilliantly with this incredible dual conversion 9-band receiver. Offers superb sensitivity, selectivity, interference rejection and stability. AND . . . deluxe features such as: A special ceramic filter to cut interference from nearby frequencies; AM, FM and all 7 SW bands between 5.95 and 21.75MHz are spread out on the dial for ease of tuning. For optimum sound and convenience, a tone switch, LED tuning indicator, telescopic antenna, earphone jack and a prop-stand are built in. Includes earphone, external antenna wire.

protective case and full instructions Colossal value! Cat D-2837



Bearcat 201FB

. . . all bands including aircraft



Now a budget scanner which will cover just about everything you could possibly want. Its 9 bands include aircraft, military, business, emergency services, amateurs, UHF CB, taxis, tow trucks, etc,

Anything that's not there is simply not worth listening

With 16 programmable channels plus scan and search facilities it will find the station you want and then keep it for later listening. One piece keyboard features push-button operation for all functions except volume and squelch. Cat D-2802

- Covers the following frequencies (MHz): 66 –
 88, 118 136, 138 174, 399 499 in nine bands
- Operates from external 12V or from mains with optional plug-pack adaptor.

 Patented Track Tuning and Selective Scan
- Delay

 16 channel memory, full scan/search facilities

REGENCY **HX-2000** Hand Held Scanner





At last! A hand-held, go-anywhere scanner that doesn't sacrifice any of the performance of the 'fixed' type. In fact, it does better then many other scanners: up to 525 MHz including aircraft band! and it gives you 20 memory channels!

With a sensitivity of 0.5uV VHF, 0.7uV UHV and +/-7.5kHz (6dB) selectivity you can see that this scanner is ready for ACTION! And its priority, scan and search facilities mean you won't miss anything! Complete with whip antenna and comprehensive

instruction manual. Cat. D-2815 Specifications:

- 60-89, 118-136, 138-174, 436-490 and 490-525
- Search increments 5,10 & 12. 5kHz (VHF) and 12.5kHz UHF
- Power requirements 4.8V (Nicads) or 6V (dry cell or external)
- Just 77 x 175 x39 mm

NiCad Batteries Included!

ALL THIS

Hear more...hear better. **Helical Dipole** Scanner Antenna

Now there's no excuse not to hear everything on your scanner - not when you have this scanner antenna.

Designed by a scanner expert especially to suit the bandwidth of today's scanners,

it features performance approximately equal to a quarter wave in free space. Covers all major scanner bands - 70 to 174 and 400 to 500MHz, with easy mounting via

the eye hook (or if you prefer, can be mounted on mast with 50 or 75mm stainless steel hose clamps).

Overall length is 155mm, and it weighs just

1.5kg. Fitted with 3.5m cable, terminated in standard car-radio type co-ax plug (as used by 99% of scanners). Cat D-4432

Get the most from your scanner!



WHY SPEND HUNDREDS OF DOLLARS ON A GOOD RECEIVER IF YOU ARE ONLY USING A PIECE OF STRING FOR AN ANTENNA?

Get the best reception from your receiver with this

- high quality short wave antenna
 Designed especially for Dick Smith by a short wave expert.

 Complete and ready to assemble.
- Needs no soldering.Instructions included.

000 800

ONLY \$399

And new from Bearcat;



X-1000 Receiver

What a receiver! From Bearcat: the people who brought you the world's best scanners comes the DX-1000 a magnificent performer by any standards

With frequency coverage from 10 kHz to 30 MHz (yes, you read that correctly!) and all modes, 10 channel memory, twin noise blankers (including an effective Woodpecker blanker), variable tuning rate, digital or dial frequency selection, digital

frequency display... it represents outstanding value for money! It's got magnificent specifications, too:

• 1.0uV AM & 0.3uV SSB sensitivity on all

HF bands

- 70dB Image ratio above 150kHz
- Selectivity: -6dB @ 12kHz & -50dB @ 20kHz, -6dB @ 6kHz & -50dB @ 12kHz, and -6dB @ 2.7kHz & -4.5kHz
- 50 and 500 ohm antenna inputs 12V DC operated (internal cells or external 12V or AC adaptor)

Cat D-2830



ONLY



AMATEUR RADIO AMATEUR R

10 Good reasons to buy your YAESU from Dick Smith Electronics

You're buying from factory authorised agents - with all the back-up and support that this entails. The very latest models. The very latest technical information. The very latest service. All direct from the factory: not off a slow boat via who-knows-where.

You'll get genuine, factory-fresh equipment intended by the manufacturer for Australian conditions. You'll get English instruction manuals. You'll get Australian power cables. You'll get guarantees valid in Australia. In short, you'll get the right goods.

You'll get the goods: Probably the most important reason of all. We won't make you wait weeks - sometimes months - after you pay your money and try to 'snow' you with excuses.

You'll get the back-up you need. Our service department holds around three hundred thousand dollar's worth of spare parts PLUS have instant access to our warehouse holding over five million dollar's worth! And if all that fails, we have **instant** access to Yaesu-Musen's immense spare parts stock!

You'll get goods with their credentials fully documented. No fallen of the back of a truck'. No questionable practices regarding their importation, duty, sales tax, etc, etc. All legal,

6:

You'll get a guarantee: for a full 12 months.And you get a warranty card to fill in and send back to us - as legitimate agents for the manufacturer. Elsewhere, they might tell you that you get a 12 month warranty or something. Then you look at the box and it's marked 'Warranty Policy Valid in Japan Only'. Who's kidding whom?

You'll **also** get our exclusive 7- day satisfaction guarantee as well (14 days if you buy through DSXpress - our mail order service.) If you're not absolutely delighted, return your purchase within 7 days in original condition and packaging for a full refund. You'll owe nothing: not even an explanation.

You'll deal with a company with a long and continuing commitment to the development and expansion of amateur radio in Australia. We've been selling and servicing Amateur Radio Equipment for most of our 17 years of operation; you're not dealing with some fly-bynighter who's interested in making a guick buck then doing the old puff of blue smoke trick.

You'll get friendly, expert help from your local Dick Smith Electronics store. We encourage our staff to obtain their amateur licences. So they can speak your language. They know what you mean when you talk technicalities. And best of all, you're not talking to someone at the other end of the country!

And we have more licenced amateurs than anyone else: to serve you better!

Manager

Supervisor

Canberra

Gore Hill

Hornsby Blacktown

Liverpool Blakehurst

Newcastle Newcastle

Wollongong Wollongong

Tamworth

Geelong Rockhampton

Adelaide

Penrith

North Ryde

Yaesu Stock

Supervisor Yaesu Service

Computer Service Auditor Accounts

Bridge Street, Sydney

Chatswood Chase

Brookvale Railway Square

Quality Control Manager Yaesu Service

Ike Bain

Garry Crapp

Ross Tester

Ray Dickinson

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James Cotterill David Wales Tony di Bona Michelle Huckle Andrew Conroy Chris Ayres Stuart Cameron Martin Lansdowne **Chris Hodgeman** Chad Coster

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VK2ZS VK2PWI VK2PIV VK6ZTT VK2PEO

VK2VCY VK2VIR VK2NLC VK2YLC VK2BYG

VK2VPR VK2YWJ VK2MMM VK3CAC

Elizabeth St., Melbourne VK4ZMK VK5ZZF

New Models for 1985

The ultimate in convenience -2m/70cm FT-2700RH

Simply superb: the brand-new FT-2700RH from Yaesu, The best of both worlds - two metres and seventy centimetres in one unit.

Why combined? With all the garbage on two lately, many operators have gone upstairs. Now two is being cleaned up (thank heavens!) a lot are coming back. But they don't want to lose seventy! The answer: the FT2700RH.

Cat. D-3515



- 25 watts continuous on both bands
- Two 4-bit CPU's for complete control Wide angle LCD display shows everything!
- Includes scanning microphone and mobile mounting bracket.

Easy, one-key band switching. Yaesu's programmable memory scan. Priority channels. 10 memory channels. Dual VFO's. Dual independent front ends, local synthesisers, IF's and transmitter RF stages. Everything you need for delightfully easy operation on both bands. And yes, full duplex crossbanding is child's play.



VIRTUALLY TWO TRANSCEIVERS

IN ONE PACKAGE!

Buy now, pay later . . .

Any of our stores will be glad to discuss easy term payments (to finance company approved applicants). Just ask!

R RADIO A

Economy 70cm FT-703R Here's value! The perfect 70cm hand-held for the amateur who does't need all the bells and whistles: Yaesu's new FT-703.

Cat D-3508

Really simple operation with three thumbwheel switches setting frequency (full 430-440 MHz coverage) and volume, squelch controls and high/low power switch on the top panel, along with external mic-

rophone and earphone sockets. Standard repeater offset switch selectable on rear panel, along with the VOX switch (VOX control circuitry inbuilt, VOX operation with external microphone such as YH-2 headset microphone - optional). Also has S/PO meter which makes the 703 ideal for fox-hunting and general purpose direction finding (external antennas can be plugged in by removing rubber duckie helical).

And the big news is the small size: just 65 x 34 x 153mm - small enough to keep in the briefcase when you're travelling!

● Wide operating voltage: 5.5-13V

- Ideal for mobile use, too!
- 2.5W output power (with 10.8V FNB-3 battery included. FNB-4 12V battery optional extra).



You can't go past the FT-709R! Absolutely everything that the serious UHF'er could ever want - all in a hand-

For a start, 10 memories to remember all your favourite repeaters and sked frequencies (covers the full 10MHz 430-440MHz band) with selective scan, priority scan, skip scan, busy or clear scan . . . band scanning - either full or within (your set) limits . . . Yaesu's unique Power Saver System: programmable receiver activation to check a selected channel. The battery lasts for much

Add your choice of battery packs for high or low power operation: use the FNB-3 pack (10.8V, 425mAh) for 2.7w, FNB-4 (12V, 500mAh) for 3.5W. Or the FBA-5 'AA' Holder for standard cells (1.8W out) or even NiCads. (The FT-790R operates from 6 to 15V, so the latitude is there!)

- Full 10MHz coverage
- Microprocessor Controlled 10 memories, up to 3.7W out
- Complete with soft carry case, rubber duckie

NB: Not supplied with batteries. Choose your own from the types above! Cat D-3509

2m Mobiles

Mobile 70cm



In a word: superb!



You'll love the flexibility that the FT-730 gives you. A full 10 watts output on the 430-440MHz band, with ten memories and two VFO's to play with!

Not just one, but two 4-bit microprocessors means total control - scanning for busy or clear channel (or completely manual scanning) is all controllable from the microphone. Plus priority channel operation, 'oddball' repeater splits or split frequency operation, etc, are all right at your fingertips. And the scanning steps are instantly changeable from 25kHz to 100kHz for slow/fast band scanning.
The tiny size of the FT-730R means it will fit just about

anywhere: just 150 x 50 x174mm! But the dial has been designed to make mobile operation easy - and safe. Large, clear display. Large edge meter for power output and signal strength. Push-buttons for most functions. And scanning controlled from the YM-47 misrophone (numbled)

- microphone (supplied).

 Full 10W output
- 10 Memories, 2 VFO's
 Memory back-up
- Cat D-3505



SB-10 PTT Switch Unit

Suitable for both the FT-2700RH and the FT-270/RH, the SB-10 allows virtual hands-free operation with the optional YH-2 headset earphone/microphone. A must for road safety! Cat D-3519



FT-270R

Low power version: Cat D-3516

FT-270RH

High power version Cat D-3517

FVS-1 Voice Synthesizer

What a great idea! Actually gives your FT-2700RH or FT-270R/RH a voice (yes, it's in English) to tell you frequency, VFO of memory selection, etc. This means you don't have to take your eyes off the road: it tells

you! Also a brilliant (no pun intended!!) idea for the visually impaired amateur

Cat D-3518



Not just one, but two microprocessors to do everything for you except make coffee (they're

working on that one!)
That's the new FT-270R/RH series of mobile 2m. Absolutely the latest word in flexibility and per-formance - including a model with 45 watts output! With 10 memories, dual VFO's and incredible scanning facilities, you're ready to take on the two metre pile-up: and win!
And this is packed into just 140 x 162 x 40mm:

small enough to go anywhere! Both models feature high/low power output (45/5W & 25/3W) so they're just right for the city or the bush!

- Unique die-cast duct-flow heatsink
- Amazingly small Huge LCD back-lit display

2m Choice:



At last! Total control, total flexibility in a hand-held! That's the new FT-209 series of 2 metre transceivers from

Your choice of transceiver/ battery combination to give the power - and the features -that you want!

FT-209R (lower power version)

Cat D-3502 \$ **399**

FT-209RH

(high power version)

Cat D-3503 \$

Features like: 10 memories for your favourite repeaters & simplex channels. And the memory even recalls the repeater split (no more forgetting to go « above 7000!)

Like keyboard entry for everything-frequency, memory, etc etc. Like Yaesu's programmable Power Saver System (saves the battery for by activating the receiver every so often to check!) Like the huge LCD display that tells you frequency, repeater split, memory channel, etc etc. Like a range of scanning options-band, limits, memories, etc. And much, much more

And you can choose the power output you require simply by choosing the model and battery combination: from a huge 5W output with the FT-209RH and FNB-4 battery down to 1.8W with the FT-209R and FBA-5 with dry cell batteries).

NOTE: These hand-helds do not come with batteries. Choose from FNB-3,FNB-4 or FBA-5 on page 69.

AMATEUR RADIO AMATEUR I



Please note: At time of going to press, the very poor Australian dollar exchange rate had forced many price increases. If the dollar appreciates during the time of this catalogue, our prices will be adjusted accordingly

FULLY AUTOMATIC

ANTENNA COUPLER

FC757AT

When it says fully automatic, believe it! This amazing coupler actually has its own 4bit microprocessor to allow fast, accurate automatic impedance matching utilizing a modified pil. network. Not only that, but it has a self-indicated in the self-indicated for a particular band, along calculating (automatic) SWR meter AND an inbuilt inline RF wattmeter according to the self-indicated for a particular band, along it remembers which antenna you've selected for a particular band, along with the settings of the matching network (and stores the information in the settings of the matching network (and stores the information in AM) so when you go back to that band, everything is done for you instantly. And if antenna conditions change while you're using it instantly. And if antenna conditions change while you're using it instantly. And if antenna conditions change while you're using it.



T-757 GX

'without modesty, the best transceiver' That's what Amateur Radio Action magazine said about the FT757GX when it came out a little over twelve months

When you look at the outstanding specifications of the FT757GX, then look at its size, you'll wonder how Yaesu managed to pack it all into the case. Here's what it offers you:

- All mode AND all WARC HF bands built in (nothing) extra to buy.
- 100 watts continuous output power (SSB/CW/FM) Twin VFO's, 8 memories, with complete control
- Triple conversion receiver covering full 0.5 to 30MHz
- 0.25uV sensitivity (SSB)
 Yaesu's famous IF shift/width passband control system
- Duct flow forced air cooling
- 4-bit microprocessor built in
- lambic electronic keyer circuit built in

And much, much more besides! Feature for feature, it more than stacks up against the opposition. And it compares more than favourably on price, too.

Add Dick Smith Electronics' commitment to fully back every product we sell (a commitment you

won't find elsewhere!), you have a winner with the FT757GX.

SPECIFICATIONS:

Coverage: TX 10, 12, 15, 17, 20, 30, 40, 80 & 160 metre bands; RX 0.5 - 30 MHz Tuning steps: 10Hz & 500kHz

Emission types: LSB, USB, CW, AM & FM

Carrier Suppression: better than 40dB below peak o/p

Spurious Suppression: better than 50dB below peak o/p

3rd Order IM Distortion: better than - 35dB below peak o/p (14MHz, 100W)

Rx Sensitivity: (1.53MHz; 10dB S+N/N) 0.25uV SSB, 0.16uV CW(N), 1.0uV AM, 0.6uv FM (12dB SINAD)

Image Rejection: Better than 70dB

\$1195

Cat D-2940



YAESU

The FP757HD. HD means heavy duty - just what the avid dx'er wants. A supply that won't get hot under the collar when you have those long qso's. Plugs straight into the 757, also suitable for other 12V. transceivers.

Rated at a superb 13.8V, 20A continuous (30 mins tx, 30 mins rx). That's some rag

chew! Cat D-2945

Cat D-2942

The CAT (Computer Aided Trans ceiver) System in the FT757GX allows use of an external micro computer to control the memory and operating frequency func

All you need is a standard RS232 port and this FIF232C interface. Full data information included Cat D-2943



C CCCCC

FRB757 LINEAR RELAY BOX

use with FT757GX and non QSK type linears where the switching voltage or current is too high for the internal FT757GX Switching relay (50V or 4000mA). Cat D-2946

FAS14R ANTENNA SWITCHING BOX

Used in conjunction with FC747AT for remote switching of up to four antennas with only one feedline and one control cable. Saves running long lengths of expensive coax! Cat-2947

MMB20 FT757GX MOBILE BRACKET

Designed specifically for the FT757GX, allows mobile mounting in either standing or slung position (eg under dash, or on transmission tunnel) giving three different angles of mount, too. Very securely holds a transceiver - ideal for offroad use (yes, it's that strong!). Cat D-2949



O AMATEUR RADIO A



Our top-of-the-line Yaesu transceiver! Incorporating an 8-bit microprocessor for the highest level of built-in computer control ever offered, this superb example of the state-of-the-art is what every amateur dreams

about owning.
From its triple conversion general coverage receiver through to its twelve memories and special scanning facilities . . . it's made for action.

And even more: with the optional RS-232C interface FIF-232C - see FT-757GX areal you can use an external micro to control a huge range of functions on the '980: mode, IF passband, frequency selection and storage functions included.



FOR BASE STATION USE

FP700 General purpose transceiver supply - ideal for all '12V' transceivers. Regulated 13.5V at 20 amps plus external speaker. Cat D-2916

All mode computer aided HF **Transceiver**

SAME AS 1984 PRICE: DESPITE 15% DEVALUATION!

\$4995

FT-980 HF TRANSCEIVER

Specifications:

Frequency receive: 150kHz - 30MHz Frequency transmit: 160, 80, 40, 30, 20, 17, 15, 12, 10 mtrs.

Modes: LSB, USB, CW, AM, FSK, FM Power output: SSB CW 100W PEP: AM 25W: FM, FSK 50W

Carrier suppression: Better than -40dB

Unwanted sideband suppression: Better than -50dB

Spurious radiation: Better than -40dB Harmonic radiation: Better than -50dB Audio response: 300Hz to 2700Hz

FSK shift frequency: 170Hz (other shifts available)
Output impedance: 50 ohm

Audio output power: 3 watts

Receiver sensitivity: SSB better than .3uV CW better

Selectivity: SSB better fran .3uV CW better than .6uV Selectivity: SSB, CW, FSK 2.4kHz (-6dB) 4kHz (-6dB): CW(N) 300Hz (-6dB) 900Hz (-60dB); CW(M) FSK(N) 600Hz (-6dB) 1.3kHz (-60dB); AM 6kHz (-6dB) 11kHz (-60dB); FM 12kHz (-6dB) 24kHz (-60dB). Power requirements: 100-120V, 200-240V 50-60Hz.

* CW(N) & CW(M) with optional filters installed



FC-700 ANTENNA TUNER

Get maximum power from your transceiver - despite your 'not so perfect' antenna!
Includes large power/SWR meter, built in dummy load and covers all WARC HF bands. Less than 0.5dB insertion loss.

Cat D-2917

\$199

FL-2100Z 1.2kW LINEAR

If you want a really clean signal at maximum legal power, the FL-2100Z gets it for you! And with the 2100Z's huge 1.2kW rating, at 400W PEP it's just coasting - resulting in years longer life for the output

bottles.

Because it's linear, it suits all mode, and it's made for all bands from 160 to 10. Has dual cooling fans, with 1572B's running AB2 grounded grid. Very large meters show plate voltage and current plus VSWR. Suits virtually all HF transceivers (requires 30-100W)



Specifications:

Specifications:
Drive: 30-100 Watts
Input: 1200W PEP on SSB, 1000W on CW at 50%
Input inpedance: 50 ohms unbalanced
Output impedance: Normally 50-75 ohms
Unbalanced with not more than 2:1 SWR.
Noise level: 40dB below single tone carrier
Power requirements: 110-240 volts, 2:1kW



With most of today's rigs having FM or FM options, transverting makes good sense! It's easy and cheap to get onto 6, 2 or 70 in any mode - and repeater splits are built in! Simply install the band module you require. Cat D-2876

PLUG IN MODULES

2m - Cat D-2877 \$179.50 6m - Cat D-2878 \$149.50 70cm - Cat D-2879 \$299.50



NOISE CANCELLING

Hand held model where high QRM is a problem. Fitted with 8 pin plug, eliminates or reduces noise by outof-phase inserts. Impedance 500 ohms. Cat C-1115 \$ 350

tt DESK MIC

Superbly elegant desk mic to really set off your station. Locking PTT, updown scanning buttons plus removable base. Impedance 500 ohms

Cat C-1114



HAND HELD SCAN MIC

Suits all Yaesu transceivers with scanning function. 8 pin plug, very easy to hold for long periods. Ideal mobile mic. Impedance 500 ohms. Cat C-1116

The above microphones all suit Yaesu transceivers

shown one these pages, plus older types with 8 pin plug such as FT-ONE, FT-707, FT-107, FT480 etc.

YAESU 4 PIN PLUG MICS YE7A HAND HELD

The favourite of many Yaesu owners. 500 ohms impedance. Cat C-1117



ONLY

YD148 DESK MIC Smart styling, great performance. Dual

impedance to suit many rigs. (500 ohms & 50k). Cat C-1118

ONLY \$5500

Above microphones suit 101 series, 901, 902, 7B,

BRACKET MMB-1

Designed especially for the larger type of transceiver in mobile use – saves it slopping about all over the carl Unique design allows for virtually any size and mounting method. Why take the risk with your valuable HF transceiver. Get yourself a Yaesu mounting bracket. Cat D-2944



AMATEUR

GaAsFET Preamps for two and seventy

We don't have to tell you about GaAsFETs - the wonder semi of the eighties! Originally designed for SHF band communications, the price has now come down so far to be a proposition for VHF & UHF.

They offer far better performance than MosFETs higher gain, lower noise and small size. You can choose either PIN diode switching or relay switching (data sheet supplied shows both). Quality Japanese made by Corona, includes mounting facilities.

Specifications:

20dB Noise Index: 0.8dB Intercept point: 15dBm Supply: 8-15V

BNC Connectors: less than 1.5:1 20 x 40 x 55mm VSWR: Size:

Weight:

Available in two models:

2 metre (GS-144) bandwidth 144-148MHz, Cat D-2956

70 cm (GS-430) bandwidth 430-440MHz, Cat D-2955



a better job and will cost you less. This is an allmode, high efficiency linear

amplifier for 2 metres. 30 watts output with only 3 watts in. 13.8 volt DC supply makes it perfect for mobile use. Dual time constant for SSB or FM operation. Reverse polarity protection too. Works great with our FT290R and FT208R or any 2M transceiver with up to 3 watts out. The best value in Australia!

Elegantly styled speaker from Yaesu intended especially for use as an extention communications speaker for transceivers, scanners,

etc in mobile use.

Measuring just 110 x 65 x 50mm (75mm high with mounting bracket supplied) and rated at 5 watts maximum, this 4 ohm unit comes complete with 1-1/2m cable fitted with 3.5mm plug. And

because it comes from Yaesu, vou know it's Cat D-2913

Yaesu SP55 Mini Extension Speaker



COMMUNICATION **ACCESSORIES Mic/Earphone Set**

Popular 'aircraft' style single headphones unit allows simultaneous Popular aircraft style single headphones unit allows simultaneous headset and local environment communication. Use with any transceiver. Long lead, 'push to talk' switch box & speaker plug supplied (but headphone & ohm mic 600 ohm Long read, push to talk switch bux a speaker plug supplied tout not microphone plug). Impedance: Headphone 8 ohm, mic 600 ohm.

\$4595

Universal Dynamic Mic

Designed especially for AM & SSB transceivers, This economical mic is supplied with a 5-wire (4 lead plus shield) 2 metre lead that can be adapted to any transceiver — even ones with electronic switching! Has a nominal 600 ohms impedance can be re-wired with internal transformer for ance, can be re-wired with internal transformer for ance, can be re-wired with internal transformer for 50k. Supplied with a standard 4 pin socket. Cat C-1102

Noise Cancelling Mic

Ideal for the amateur or CB'er. Noise cancelling is achieved by use Ideal for the amateur or CB'er. Noise cancelling is achieved by use of twin out-of-phase inserts. Fitted with a high quality PTT switch and coiled lead, impedance is 250 - 600 ohms with a frequency response of 300-5000Hz.

Cat C-1105

Noise Cancelling Power Mic

The cleanest signal yet. Get both audio amplification AND noise reduction for under \$40! Noise enters front and rear of the mic cancelling each other out. Comes wired to a standard 4 pin socket. Needs 9V battery (not supplied) 3750

Mobile Mic Mounting Clips

MAGNETIC: Cure a dangerous dangling microphone with this clip. It attaches to the rear of most hand-held microphones. A strong magnet holds the microphone securely in place to any ferrous surface. Cat C-1260

SCREW-IN: A simpler type clip, can be screwed to any convenient location — the mic is held securely by a spring in the clip. Complete with mounting screws. Cat C-1262



FT-77 Mobile Mounting Brackets We've had hundreds of requests for a mobile mount for the FT-77 and FT-77s.

Here it is: the genuine Yaesu mount made especially for \$2.250

mount made especially for Cat D-2909

HF/UHF All Mode Tribander FT726R

Now that so many satellites are going up, we're constantly asked for a true satellite transceiver. Here it is: and what a trans-

You choose the plug-in modules for the bands you want to use - two additional bands can be installed along with the two

metre module supplied.
Plus a satellite IF unit can be installed giving a full duplex crossbanding with independent tuning, mode selection and metering for the band in use! Just add a couple of good antennas and you have the finest amateur satellite earth station

Cat D-2950

- All modes on all three VHF/UHF bands - 6m 2m and 70cm (with all modules installed.)
- Full duplex crossbanding with satellite unit installed

 And the add-on modules:

DC Power Cable:

Run your FT726 from 12V - great for contests, field days, or just getting away from the QRM! Cat D-2954

\$**44**95

- 10W output on each band
- Repeater splits for all bands easily programmed into memory

 Dual synthesised VFO's tuning
- 20Hz/step
- Speech processor for SSB
 240V AC operated (12V DC with optional power cable).

COMPLETE WITH 2M MODULE

70cm Module:

GaAs FET receiver preamp, operates over full 430 - 440MHz band with 0.15uV sensitivity (SSB, 12dB SINAD).

\$**475**00

6m Module:

Full 50 - 53.9998MHz coverage with 0.15uV receiver sensitivity (SSB, 10dB S + N/N) Cat D-2951

\$37500



Satellite Module:

Full duplex crossbanding is so easy this module does it all for you! Cat D-2953

MATEUR ANTENNAS & AC



250kg H/DUTY ROTATOR

With a vertical load of up to 250kg and a wind load of 0.4 square metres. our new high load rotator is ideal for VHF and UHF beams, many HF beams and virtually all TV antennas.

And best of all, unlike previous rotators, it requires just three conductors between the control unit and rotator - save \$\$\$ on long cable runs. Now there's no excuse not to put up a rotator; get the most from your beam without having to go outside and 'swing it' by hand!

Supplied complete with mast clamps and control unit, ready to mount on a flat tower plate. (Vertical mast mounting see below), Fully approved by the electricity authority: don't take chances with nonapproved units.

> Full 360 degrees plus 15 degrees overrun Rotation Time : 60 seconds for 360 degrees Rotation Torque 450kg/cm (min).

2500kg/cm (min). Torque Wind Load 0.4 sq. metres Vertical Load 250kg (max). 38 to 50mm diameter Mast Size : Weight (drive unit)

> SPARE MAST CLAMPS: In case you want to mount the rotator on a vertical mast (eg a tower extension) use a second set of mast clamps (as illustrated on the mini rotator at right). Cat D-5001 \$21.95

50kg MINI ROTATOR For lightweight UHF/2m beams, TV & FM antennas, Why spend \$\$\$ more on a heavy-weight rotator when all you're turning is a small beam? Our soft weight entired load of with a l the electricity authority.

Specifications:

• Full 360 degree rotation (plus 15 degrees!) with mechanical stop • 70 degrees!

• 1000kg/cm rotation torque for torque diameter of degrees degrees!

• 1000kg/cm rotation torque diameter degrees degrees!

• 1000kg/cm rotation torque diameter degrees degrees!

• 1000kg/cm rotation torque degrees degrees

Cat D-5003

MOBILE ANTENNAS AND BASES

2 METRE 5/8 WHIP

Real value in a 2 metre whip: this one is the ideal replacement antenna for all 2 metre users. % wavelength long, very flexible (so you won't break it off on low flying aircraft) with standard 5/16" x 26tpi female socket on base. Use with either of the bases at right. Long life black heatshrink covering. 1.34 metres Cat D-4205

UNIVERSAL UHF/VHF

Coaxial Neoprene base (coax feed) plus stainless steel whip ready to cut to desired frequency. Complete with cutting chart, suits any ¼ wave 2m or higher frequency. (Does not include coax). Cat D-4023

VHF/UHF WHIP KITS

Cut your whip to suit your band: we have two different kits available, one to suit VHF or UHF operation and one for UHF only. Both come complete with gutter gripper mount,quality antenna base to fit, 2 metres RG58C/U UHF quality co-ax cable, a PL-259 UHF connector and a whip antenna. Both have cutting charts to allow you to cut the whip to the exact length for the frequency of operation

UHF ANTENNA KIT

Designed to suit our K-6300 UHF amateur transceiver kit, but obviously ideal for all types of UHF transceivers (CB included!), 150mm stainless steel whip included plus special UHF co-axial base. Cat D-4014

VHF/UHF KIT

Similar to above, but has 520mm whip which can be cut anywhere between about 120MHz and light! Base included is standard (soldered) type - very easy! Cat D-4024

DELUXE GUTTER GRIPPER BASE

At last! A gutter gripper that will grip: anything! If you have a difficult mounting problem, try this one. It has a non-distorting grip, with two direction adjustment to take into account just about any angle. 14mm mounting hole suits most antenna bases. This can even be used on the vertical section of your car's gutter! Cat D-5100

UNIVERSAL MAGNA **BASE**

Ideal for company cars, etc, where drilling holes in the roof is a definite no-no! Extra strong magnet grips any ferrous surface and stays stuck even at high speeds (tested at over 130km/hl). Gasket prevents scratching. Standard 5/16" x 26tpi male thread for use with amateur or CB antennas (for adaptors see

CB pages). Coax and PL259 plug included. Cat D-4514

WEATHERPROOF BASE

for HF/CB/VHF use Universal base for mobile use (we've even seen them used aluminium roofs!). Neoprene & nylon washer ensure weatherproof mount. This versatile base can be used through roof or on an antenna bracket (eg. roof rack). Requires 14mm hole. Use with W-1372 lead set. Fitted standard 5/16" x 26tpi. Cat D-4056

\$550

AMP LOAD

Built into PL-259 plug - ideal for 27MHz testing. Lights up on carrier, also sho modulation. Rated at 5W. shows Cat D-7024

100W LOAD

High power for amateur transceivers, etc. Large surface area to dissipate huge amounts of heat, 100W continuous rated. Cat D-7010

DC - UHF 15W LOAD

15W load with radial fins, fitted to PL-259 plug. Flat response from DC to 450MHz (usable over 500!); ideal for 70cm & UHF CB bands. Cat D-7025

300W Load

50 Ohm ceramic resistor with high overload tolerance:handles 300W for 30 seconds, 75W for 8 minutes. Fitted with SO-239 connector. Offers a VSWR of less than 1.1:1 from DC to 30MHz, and 1.5:1 maximum to 150MHz. 45 x 55 x 155mm. Cat D-7030



SORIES



V5JR 5 BAND VERTICAL

If you're typical of most amateurs, you live in the suburbs where space is at a premium. You need an effective antenna, but there are objections to putting up a beam (the wife, the council, the neighbours etc.) You need our V5JR vertical. Virtually unnoticeable in your backyard, you'll be able to pursue your hobby without worry!
The V5JR uses pre-tuned trap coil assemblies enabling the one antenna

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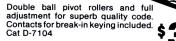


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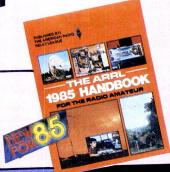
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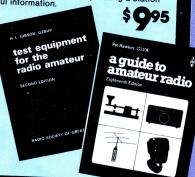
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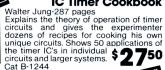
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It's a free service from Dick Smith Electronics: and it's open to anyone with any type of computer capable of speaking in ASCII.

Call the DSE RBBS on Sydney **02)** 887 2276

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such as BASIC, COBOL, PASCAL, FORTRAN etc. Also has a special business
section. The peripherals are explained as
well as the economics of a business system. Absorbing! Cat B-2366



NEORMATION

STOCK AND **PRICES**

This catalogue is produced to cover the year from April 1985, until March 1986. Because of this, plus the fact that this catalogue is in print production from February 1985, there may be items shown in this catalogue that are not in stock at the time of your receiving this catalogue, or could even be sold out. Likewise, prices are subject to revision during the life of this catalogue. We are aware of the inconvenience that this sometimes causes and would like to take this opportunity to ask you to bear with our problems and if you are not sure as to prices and stock availability, please phone and check with Thank you -- the staff of Dick Smith Electronics us before making a long journey.

GUARANTEES

Manufacturer's guarantee.

- All Australian manufacturer's guaran-tees are fully valid on products we sell
- 2. Semiconductor augrantee policy. Most manufacturers will not replace semi-conductors, as all semiconductors shipped from their factories are computer quality controlled. However, in some cases when the value of the semiconductor is considerable (e.g. over \$5.00), a manufacturer's engineer will test the semiconductor if it is returned unsoldered to them. You can return your

semiconductor to the manufacturer's agents

- either through our company, if purchased from us, or deal direct, to save time. **Periods of guarantee.** Unless stated otherwise, items in this catalogue carry a standard warranty of 90 days from date of purchase. If you are not supplied with a guarantee card, keep your sales dockets, including cash register receipt, in a safe place, as the sales docket will become your guarantee card. If your purchase requires warranty service within the
- warranty period, you will be requested to produce your dockets when returning the product under warranty for repair. Freight. Although repairs under warranty are carried out free of charge, the customer is required to pay the freight both ways. There-fore, to save yourself money, make absolutely certain that the unit is faulty before returning
- Warranty service on Items over \$75.00 retail. At our discretion, we replace on-the spot, many goods returned under warranty for a new item from our inventory providing the item is in 'as new' condition, including packing and accessories. However, on high value lines the item must be returned to our service department for inspection before being repaired or replaced under warranty.

SATISFACTION GUARANTEE

If for any reason you are not satisfied with you purchase, return the goods to us within **7 days** or purchase, in original condition and in origina carton, and we will exchange or return your money. less transportation costs. Goods returned to us must be unmarked and in the exact condition as

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ORDER FORMS

To speed delivery we have pre-printed Order Forms (see pages 81 and 83). All orders on this form receive preferential treatment. Extra forms are available free of charge if requested and one is enclosed with each order despatched.

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To minimise the chance of error in your order please use the catalogue number as well as a description of the product.

If prices vary, the new price will be shown on your delivery advice and a debit or credit issued. You may return the goods for a full credit under our satisfaction guarantee, if you are not satisfied.

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For your convenience, we accept orders for mail orders on Credit Cards. The minimum order value Bankcard, Visa, Mastercard purchase is \$5.00.

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On many of our lines we can offer extremely attractive prices for large quantities. Our distribution company will be glad to advise you on either large quantity purchases or purchasing for re-sale. (In normal circumstances, all sales tax is paid on our goods on the understanding that the goods are not to be re-sold. This keeps the price down for the

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We supply a very large number of schools with components, etc for their electronics courses. Obviously, the bulk discounts apply for schools purchasing in quantity. A 30 day account is available for schools – please apply direct to the General Manager on your school letterhead.

All prices shown in this catalogue include sales tax, where applicable. Goods can only be supplied,

- A sales tax number or exemption certificate is supplied on an official order, or
- A properly completed and signed student's exemption form is supplied (specifically for calculators etc.), or
- The goods are to be directly exported by us,
- Travel documents, etc. are supplied by bonafide overseas travellers. (See Travellers').

In all cases for sales tax exemption, the minimum value of each item must be at least \$10.00.

SUBSTITUTION

When a certain product is no longer available, we will substitute for an equal or better quality product on the understanding that a substitute is available. If our purchasing power makes this substitute cheaper, then we will pass on the saving to the customer. If, however, we can improve on the product, the price could either increase or remain the same as the original product. To reiterate, all prices and specifications are subject to change without notice

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We can offer credit terrms through Custom Credit to customers who personally visit our stores. These terms are offered on condition that the customer is approved by the finance compan-(*TAP: to approved purchasers). Terms are not available through DSXpress.

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To make ordering even easier we have installed a special 'Order-by-Credit Card' phone line. To place an order, ring us on

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For the price of a local call: anywhere in Australia (8.30 – 5.00pm Monday to Friday) and quote your Credit Card No. & street address. We'll have your order on its way in less than 24 hours. Mail order enquiries should be directed to the normal phone number.

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Despite opening a Dick Smith store in Auckland with its own Mail Order Centre, we still have a large number of New Zealand Mail Order Customers buying from our Australian Mail Order Centre because of the increased range available. When buying from overseas, please remember to take into account the difference in exchange rates between your currency and the Australian Dollar.

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If you are not sure of the total amount of your mail order and are paying by cheque, simply cross the cheque, having made it out to Dick Smith Electronics and leave the amount payable blank. We will then fill in the extra cost of the goods and delivery charges. This eliminates charging for small balances or issuing credit vouchers. Many of our customers have been using this system for vears and find it very satisfactory.

RAIN CHECK POLICY

advertised goods are sold out during the currency of the advertisement or if goods are otherwise unavialbale for unforeseen reasons, our policy is to issue a 'Rain Check' to enable you to buy the goods at a later date for the advertised price. This does not apply to special scoop purchases, limited stock offers and the like which will normally be noted as such and say 'No Rain Checks'.

COMPUTER HOTLINE

Because of the fantastic response to home computers and their peripherals, we have instigated a COMPUTER HOTLINE. This service is extended to customers who have purchased, or are thinking of purchasing, any Dick Smith computer or hardware and software peripherals. We welcome your enquiries as we feel that the only way to a better understanding of the computers we sell is through your questions. Please give us a call

1.00pm to 5.00pm, Monday to Friday on (02) 888 2002



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As a service to overseas travellers visiting Australia, our stores can suply goods free of sales tax providing:

- Airline tickets, passport etc. are produced at the time of purchase.
- Certificate 'C' is properly filled out and handed to the store manager.

NOTE: Australians travelling overseas are not eligible for this concession under Australian Government Laws and Regulations.

SPECIAL PURCHASES

We stock the goods shown in this catalogue and our regular advertisements in Electronics Today, Electronics Australia and other magazines, the daily press and on TV. New items are continually being added to the range to cater for as wide a range of needs as possible and a great deal of effort is put into searching for new products. For this reason, it is impossible for us to purchase special items for individual customers.

QUOTATIONS

We do give written quotations if required. We must emphasise however, that prices are subject to confirmation at time of order. This is because there are many factors in our prices that are beyond our control and therefore responsibility.

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All prices in this catalogue were checked at time of compilation, but are subject to change without notice.

The price savings shown are either off our previous price, or off our competitor's normal selling prices for equivalent goods.

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All Dick Smith stores are open for trading during the normal trading hours for their particular area (either 9-5.30 or 8.30-5). Many stores are also open for late night trading: please ring the store concerned for their particular hours (nos. on page

LIABILITY

As the use of our products is completely beyond our control or supervision, we cannot be held responsible for damage or destruction, conse-quential or otherwise, of equipment or articles in or on which our products are used, attached, or otherwise employed. Liability is limited to repair, replacement or refund

(at our option) of goods purchased.

HAVE YOU ANY PROBLEMS OR COMPLAINTS?

We are particularly proud of the reputation our ompany has earned with electronics enthusiasts The last thing we want is an unhappy customer. If there is something that you don't like, or if you have any suggestions which may help us serve you better, why not let us know. I assure you that every letter will receive my personal attention. Oute Chen

Write to:

Mr. M. Wilson, Managing Director, Dick Smith Electronics, PO Box 321, North Ryde NSW 2113

or call me on Sydney (02) 888 3200

MINIMUM MAIL ORDER VALUE

The minimum order amount is \$5.00 unless otherwise implied in 'Special Offers' through advertisements

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We are happy to sell to foreign countries. Simply address your order to 'DSXpress International Mail Orders' at the address on the Mail Order Form. Where possible, we will deduct Australian Sales Tax (note the \$10.00 minimum for sales tax exemption).

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We would also remind overseas customers that our guarantees are 'ex-store'

our guarantees are ex-store.

If, for any reason, goods are returned to us from overseas (eg for service, etc) it is absolutely essential that Customs documents are included. If they are not it can be a very costly process to obtain Customs Clearance and this charge must be paid by customer. Failure to include Customs documents can also result in long delays.

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The customer may nominate registration and insurance for his goods. Where this is not specified, the goods will be sent at the customers vour - risk

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All claims for damaged or missing goods must be filed with the carrier concerned – do not open parcel if you suspect that the goods are damaged.

DESPATCH OF ORDERS

All goods in stock are despatched promptly. Goods out of stock are 'Back Ordered' and sent later at our expense (and it's an extremely costly job) unless we advise otherwise. All back orders are despatched immediately we receive the goods from our suppliers. When we send a copy of the order back to you, the delay times will be quoted, but because this information is given to us by our suppliers we cannot guarantee their accuracy.

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If you wish to enquire in any way about your order, please give FULL DETAILS. Give date of posting your order to us, your name, address and postcode, a list of the products ordered, any relevant mail order/cash sale invoice numbers. If the above are not given, we have no way of checking your order. Please quote Customer No. for fast efficient service.

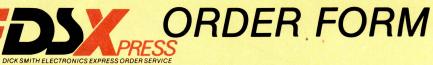
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You are welcome to enquire about your mail order by phoning in. Simply ask for 'Mail Order Enquiries'. When connected give the following information: your name, postcode and the information you require. You will then be asked to phone back in 15 minutes. You will appreciate that with over 75,000 mail order customers, it may take us a little time to locate your order. Phoning back saves time and expense, especially with STD calls. It also saves jamming our switchboard. Please quote Customer No. for fast efficient

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24 HOUR DESPATCH



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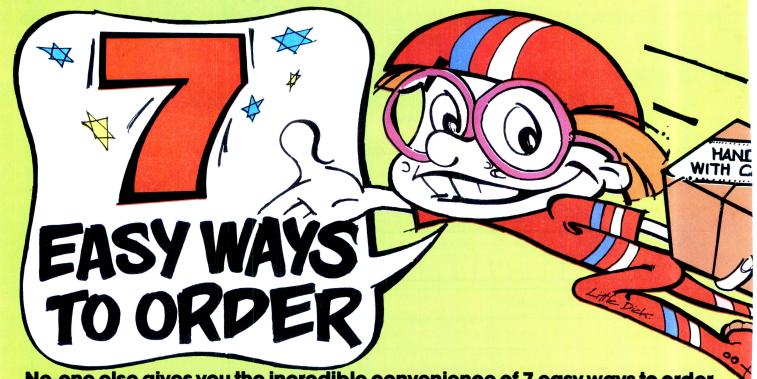


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the cost of just one local call!
Payment may be made through your nominated credit card: Bankcard, Visa or Mastercard.

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If you own a computer, you must know about the Dick Smith Electronics Remote Bulletin Board System - (02)887 2276. As well as all the features of this free service, a special section has been included to allow you to order via your computer! Yes, you can call the RBBS even at three o'clock in the morning and place your order, charge it to your credit card ... and have it on its way later the same day! Full details from the DSE RBBS (02) 887 2276

CONVENIENT AND CERTAIN

Especially for those with access to facsimile machines (and that seems to be an incredible number these days!) we've installed a fax machine, ready for your order any time - day or night. And the best part about fax is you know the order is in writing - as you wrote it: there can't be any misunderstandings! Our fax machine is group one, automatic and the number is (02)888 3631

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Even if you don't have a telex, you can have your order delivered at almost the same speed by using the Australia Post Telegram Service. Many of our remote area customers find it extremely convenient and you can have the telegram delivered to us, or delivered to our Telex number. Telegraphic Address: Diksmit, Sydney.

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"AND FOUR FANTASTIC WAYS TO RECEIVE YOUR ORDER TOO.

And we subsidise freight, too!

After you've used the special 'freight free' order form in this catalogue (sorry, we can only do it once!) why not take advantage of our exclusive freight deals. Because of the HUGE amount of freight we despatch every day, we've been able to arrange some very special prices with the freight companies:

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'Can't Wait' rate: Even quicker! \$7.00 up to 4kg anywhere in Australia.

Overseas air freight: DSXpress International will be glad to send you a special overseas order form detailing overseas postage rates.

(2) Road Freight:
Great for heavy and bulky items. \$10 anywhere in

And not just ordinary post, either! We courier all post bags to interstate capitals and post from there. Saves your package lots of time (it doesn't get caught up in the Redfern Mail Monster!)

(4) Local Courier:

If you're in the Sydney metropolitan area, DSXpress will courier your package to you using either VIP, standard or budget courier systems. And you can charge the goods to your credit card!

AND FOR DSXPRESS CUSTOMERS, WE OFFER OUR EXCLUSIVE 14 DAY MONEY BACK SATISFACTION GUARANTEE!

page 84



KITS KITS KITS KITS I

WHY YOU SHOULD INSIST ON A QUALITY DICK SMITH KIT!

OUT IT GOES! WE'RE NOT HAVING THAT IN OUR KITS!



crook component in your kit.

...THE THINGAMAJIG IS CONNECTED TO THE GIZMO, WITH THE WATCHAMACALIT EXACTLY...



Our kits are complete: even to the special step-by-step instructions.

Don't fall for the old photocopy of the article trick: it usually doesn't have enough information to build the kit successfully. And if it doesn't have a quality control card... it obviously hasn't had any quality control! Send it back – and get your kit from Dick Smith Electronics.

included with most kits.

ARE GUARANTEED!

We cannot guarantee your labour, but we can -and doguarantee every kit we sell. Not only that, we offer our exclusive 7-day satisfaction guarantee: If you believe constructing the kit is beyond you after examining the kit, before you open any of the individual component packs, return the kit (in its original condition and packaging) for a full refund of purchase price. You'll owe nothing: not even an explanation!

GUARANTEE

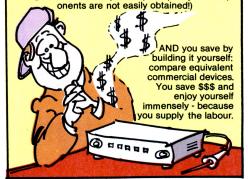
AND WE EVEN HAVE OUR OWN KIT DESIGNERS!



Many of the kits you see in the magazines were developed by our own engineers. Our research & development dept. is working on new ideas all the timel Sometimes we allow them out (but not during the full moon).

THINK OF ALL THE MONEY I'VE SAVED!

Actually you make a double saving: You save because our kits represent a saving over the individual component price (many kit components are not easily obtained!)



SORRY, DICK-IT DOESN'T WORK ...



Only we have the 'Sorry Dick', it doesn't work' service. On many of our more complex kits, we offer a special low cost repair service if, for some reason or another, you cannot get the kit to work.

We'll find the fault and get it back to you for one (low!) nominated service fee. This fee is way below ruling repair rates, and is available only on specifically nominated kits. (We reserve the right to return your kit and service fee if our engineers

we reserve the right to return your kit and service fee if our engineers consider the kit is so badly constructed as to make economic repair impossible).

NOW I KNOW WHICH ONES I CAN BUILD!



And you'll know, too: all our kits have a special 'star guide' to show you how simple or complex construction is. One star means it's ok for the beginner. Two stars means some el-

ectronics construction knowledge is necessary (eg. the average hobbylist, with good soldering and construction techniques and perhaps digital of RF knowledge, etc.

300,000 KITS 50LD

Electronics for the electronics enthusiast: that's your Dick Smith Electronics store

KITS TV/RAD





As described in EA

TV sound can be very high quality - especially now it's

being transmitted in stereo. But 99.9% of TV sets can't take advantage of this because they're only equipped for mono sound. And 99.9% of people aren't willing to get rid of a perfectly good colour telly just to get stereo sound! Especially when a new stereo colour TV can set you

back the best part of a tidy bit! Here's the Dick Smith Electronics - low cost -

solution.

Solution.

Build this stereo TV decoder and get full hi-fi quality stereo television sound for just a fraction of the cost of replacing the telly!

You have a choice of building the decoder with its own power amplifiers - or you can simply feed the output into your hi fi stereo system to cut costs even further.

The result: stereo TV sound you'll be proud of! And even more: included is a TV tuner which picks up UHF - so if your telly can't quite manage UHF you're even further in front! Cat K-6325





Another money-saving kit from Dick Smith Electronics -bringing you the latest in technology at a fraction of the normal cost.

Teletext - that mine of information given out free by a lot of TV stations - hasn't really taken off in Oz: mainly because of the cost of Teletext Televisions (most are

around or over the big \$1000 mark!)
It's a pity, really because there is somuch information available - and the system will expand greatly when there is more acceptance.

Teletext information is transmitted during the otherwise 'useless' period between each TV frame (the black line you see with colours flickering if the vertical hold is out!)

vertical find is out;)
All you need is this adaptor to pluck out the information, and hold it for display on the TV screen. You can have Teletext only, or a mix of Teletext and picture, or even news flashes and, perhaps most important of all, captions for the deaf on many programs.

We've kept the price way, way down by designing this Teletext converter to be used in conjunction with a VCR (or the Stereo TV tuner at left!).

Check with your local TV station(s) to ensure Teletext or captions are being transmitted before com-

mencing construction! Cat K-6315 As of As described in EA

AM STEREO



And the latest high-tech innovation is Stereo AM Radio. So new, in fact, that at time of going to press, only about 40% of radio stations in Australia were transmitting stereo!

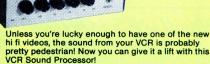
Stereo AM makes your ordinary radio listening take on a whole new dimension. And despite what the FM stations try to say, AM stereo is at least the equal of FM - sometimes even better!
Our Stereo AM adaptor kit is designed to add to most

wide-band AM mono tuners - typically hi fi tuners. It is not suitable for adding to most types of 'trannies' -small transistor radios, three-in-ones, etc. The performance of the AM tuners in these devices is not sufficient to allow the AM stereo detection to work

satisfactorily.
It is relatively easy to add (full, detailed instructions included), but some knowledge of electronic con-struction techniques and trouble shooting is advised: after all, you're attacking a commercial device and you will certainly void any warranty it has! ★★★

VCR Sound Processor

\$4095



It includes an effective stereo simulator circuit, a 5 band graphic equaliser to make up for the crook audio and your (probably!) equally crook listening room plus noise filtering to get rid of tape hiss and

other unwanted high frequency noise Cat K-3422 ** As described in EA

Video Enhancer



If the sound on your VCR is crook, what about the video! Especially when you're making copies of tapes (yes, the ones you shot yourself of course). Make sure you don't lose detail when dubbing: use the EA video Very simple to use; all control is via one knob. And

unlike most enhancers, you can cut as well as boost (ideal for softening harsh pictures). Cat K-3463

Simulator



Wish those old video movies had modern stereo sound? This low-cost gadget turns almost any mono signal into amazingly good synthetic stereo! Cat K-3421

As described in EA

ideo Modulator



Cat K-3462 For computers, videos, etc with standard composite video output: now you can build this modulator and have an RF output as well - so you can use it on a standard TV set. Output on VHF channel 0 or 1.

Poor TV signal area? Build the

TV Masthead Amp (Mk2)



Don't put up with lousy TV (we can't do much about the content, but this kit should fix the pix!) Reduces or even eliminates snow, also great for reducing ghosting. Covers both UHF and VHF TV bands plus FM bands. Includes 240V supply in price.

Cat K-3232

As described in EA

If you can't pick up UHF TV on your VHF TV, this kit could solve your problem. Also ideal for UHF VCR's on VHF TV's. Complete with double sided PCB, connectors and instructions. Cat K-3235

'S AMATEUR

70cm Amateur Transceiver



DSE UHF Explorer transceivers have been built and, from the reports we've received, very few problems have been found; most constructors are delighted with the ease of assembly and the performance

It's definitely not a kit for the beginner (after all, you need an amateur licence to use it!!) and we strongly advise both UHF and digital troubleshooting experience, as well as professional standard of construction (UHF is not kind to sloppy constructors!)

The result: you'll end up with a transceiver at least the equal of most commercial units, at a fraction of the cost (now that the dollar's gone through the floor!)

Cat K-6300

Frequency: No of channels:

Mode of operation: FM Supply req.: 13.

Receiver:

Selectivity:

Sensitivity:

quieting -6dB 7.5kHz; -60dB 15kHz Adj. chan rejection: Better than 80dB Power Output: 5W (typical)

438.025-439MHz

13.8V DC 2A (5W

Dual Conversion

0.4uV for 20dB

Superheterodyne

in 25kHz steps

output)

Repeater Upgrade Kit

Add-on kit to give your Explorer full repeater operating capability, plus S-meter, an additional crystal filter and a new front panel to take Smeter and repeater switching. \$2450

2m Amateur Transceiver



The perfect mate for the UHF kit. The DSE Commander VHF transceiver has been developed in response to the huge number of requests from our customers; those who had the 'Explorer' under their belts and had been bitten by the old 'home brew' bug! (In fact, a number of customers said they didn't really need another 2m transceiver: they'd built it for the sheer fun of making something again!)

The 'Commander' has specs which more than match most commercial transceivers selling for two and three times the price. It covers the full 144–148MHz band in 10kHz channels (with 5kHz offset), with full repeater facilities built in. And it delivers around 10-15 watts with a receiver sensitivity of 0.5uV

The DSE Commander comes complete with a very comprehensive step-by-step construction manual (including a 'Sorry, Dick it doesn't work repair coupon) plus microphone and mobile bracket. Nothing more to buy!

Specifications: requency:

144-148MHz in 10kHz steps (5kHz

offset) Mode of operation:FM Supply req.

13.8V DC 2.5A (15W output) Dual Conversion Superheterodyne 0.5uV for 12dB Receiver:

Sensitivity:

quieting Better than 60dB at Selectivity:

plus/minus 25kHz 10W nom, 15W max

Complete with full repeater capability (plus/minus 600kHz).

Cat K-6308

'Glass RTTY' for your VZ-200 or VZ-300 computer ... the low cost way to get into teletype!

At last there's a way for the amateur to get into RTTY without spending a fortune! The 'Glass RTTY' project gets you on the air for under seventy dollars (if you own a

The VZ-200 has a very good name for its low radiated rubbish (unlike many of the 'big name' computers) – making it ideal for use in the shack. And the new VZ-300 has been designed along similar lines: and looks like earning a similar reputation.

(By the way, VZ-200's are starting to appear on the second-hand market at really

Twin PCB construction makes the RTTY decoder simple to build - and the whole lot fits into a case (supplied) that simply plugs into the expansion port on the rear of the VZ. There are DIN connections for the transceiver's speaker, mic and PTT.



Features:

● 1K (1024 character) 'write ahead' buffer WRU buffer

7 pre-programmed EPROM

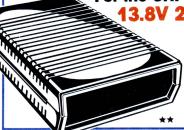
messages Single letter commands for ease of operation.

Now includes full details on how to adapt kit for reception of commercial RTTY on an HF receiver!

Cat K-6318

NEW KITS COMING ALL THE TIME: The kits on this page are just some of those developed in our own laboratories. We're working on more right now: keep your eyes open!

For the UHF or VHF transceiver: 13.8V 2A Power Supply



Matching supply for the Explorer UHF or Commander VHF transceivers. Built in the same style, supplies 13.8 volts regulated at 2 amps continuous. The perfect way to complete your home brew station. Cat K-6310

owermaster 13.8V - 25A Pk!"



Need more oomph? You'll get it with Need more compn? You'll get it with this superb supply. Designed with total flexibility in mind: you choose the transformer you want for your application. If you want to run an amateur transceiver or a linear amp, use the M-2010 transformer and get a whopping 14 amps continuous or 25 amps peak! For lighter applications, try the cheaper M-2000 transformer: it will give you 6 2000 transformer: it will give you 6 amps continuous and 10 amps peak! Has electronic fuse protection (short circuit/overload), and is housed in a specially designed heavy duty alum-inium case with plenty of room for meters, etc should you desire.

Transformers to suit: 14 A continuous M-2010 \$54.50 6 A continuous M-2000 \$24.95

TS AUDIO KITS AUDIO

A stereo amplifier that will equal or better just about any integrated commercial amplifier, regardless of price . . . Leo Simpson, Editor, Electronics Australia magazine.

A price/ performance breakthrough

vmas

This is the one you've been waiting for. The allnew Playmaster Series 200 Integrated Amplifier is almost certainly the best build-ityourself design to be published anywhere in the world! Feature for feature, dollar for dollar, it more than stacks up against the 'big names' in hi fi - with the big price tags to match

And it has features that aren't even found on many of the 'names'. Features like electronic input switching. Circuitry to handle just about every input imaginable: moving magnet, moving coil, CD player, hiff VCR, cassette, tuner, etc etc etc. Plus, of course, incredible 'headroom' with 100 watts per channel output power. And much, much more!



Cat K-3516 ***

Despite its unbelievable level of performance, the Playmaster Series 200 is amazingly simple to construct: much, much simpler than previous kits. Gone are the days of tedious cable cutting, stripping, soldering and checking. The Playmaster Series 200 design has eliminated 99% of assembly problems. All potentiometers, input/output connectors, etc mount directly on the pcb itself (parts specially sourced overseas just for this amplifier!)

And don't forget the exclusive Dick Smith Electronics kit features:

- Solder-masked and silk-screened PCB to help eliminate errors
- Power transformer with factory-wound low voltage winding (why wind by hand?) Special step-by-step construction manual
- complete with our 'Sorry Dick, it doesn't
- work' repair service. PLUS our exclusive satisfaction guarantee: you can return the kit within 7 days if you think construction is beyond

OUTSTANDING SPECIFICATIONS:

- 100W/channel into 8 ohmsFreq. resp. 8Hz-20kHz (-0.3dB) 2.8Hz-65kHz (-1dB)
- Hum-100dB below full output Unconditional stability into
- any load RIAA equalisation within 0.3dB
- Distortion < 0.01% max (typical)
 0.003% 20Hz-20kHz
- Sensitivity: MM 2mV (80dB s/n)

 MC 200uV (75dB)

 Line 300mV (90dB)

 CD 2V (94dB)

GUARANTEE:

Don't be conned by vague claims and 'warnings' from tiny kit suppliers which do nothing except cast doubts on the design of this fine amplifier.

We guarantee our Playmaster Series 200 Mosfet Amplifier we guarantee our Playmaster series 200 Moster Amplinier to perform to (or even exceed) the specifications of the Electronics Australia prototype. As always, upgrades are possible – and we always check these out with the magazine concerned for approval. Otherwise we do not have the right to use their registered trade mark on our kits! You can be assured that Dick Smith Electronics will not substitute inferior components – as some other kit suppliers do.

We have now supplied around twenty thousand Playmaster kits to the hobbyists of Australia and New Zealand. We are absolutely confident that the Dick Smith Electronics kit for the new Playmaster Series 200 Mosfet Amplifier will be just as successful – and like our others will become the kit which other suppliers try to imitate.

Dick Smith Electronics

Mosfet Amplifier

A little less power ... a lower price: that's the original Playmaster Mosfet Integrated Stereo Amplifier, as described in Electronics Australia magazine.

With a very respectable 45 watts per channel output (enough to blow your head off!) it has most of the features of its big brother above: all components are on a single pcb, which makes construction quite simple. And the sturdy chassis and solid heatsinking make it ruggedly reliable. It includes integral speaker protection on board, along with fuse protection against massive overload. And our kit features a professionally designed front panel designed to suit today's modern hi fi decor.

Comprehensive step-by-step instructions are included - so you should get it going first time. And just in case you do get into trouble, this kit includes our exclusive 'sorry Dick, it doesn't work' repair service coupon.

Amazing value for an amplifier of such impressive performance: compare it with commercial amplifiers and you'll agree!

Cat K-3515

FEATURES INCLUDE: LED indicated input Loudness control Muting control

Tape monitor switch

SPECIFICATIONS:

Power Output (both channels) Frequency Response

Sensitivity

Hum and Noise THD

Stability

45W into 4 ohms 42W into 8 ohms 30 Hz to 20 kHz within 1dB RIAA

2mV phono 190mV high level

73dB phono, 80dB other inputs 0.2% at full power 0.05% at normal listening levels

Unconditional

Graphic Equaliser

Get total control and flexibility with your sound system. With cut and boost of up to 13dB per channel you can make up for deficiencies in your listening area or sound source or even create special effects.

(Big, booming bass: bewdyl) You can even make or sound source or even create special effects.
(Big, booming bass: bewdy!) You can even make
equalised tapes of those precious records.
Features professional quality brushed aluminium front panel.
SPECIFICATIONS: Freq. response (Eq. "IN"):
Boost & Cut: max. 13dB (1dB @ 20kHz)
Steps: 10 in each stereo channel
(individually controllable)

(individually controllable).

As described in EA



Full speaker switching facility Stereo / Mono switching

As described in EA

DSXpress: the convenience of 7 different ways to order

AUDIO KITS AUDIO KIT

Musicolor Mk IV

What's better than a colour organ and a chaser? The Musicolor MkIV: it combines both in one unit! Four chase patterns plus auto chase and reverse chase AND four channel colour organ with built-in microphone (no connection to speakers necessary!) means you're ready to stage a lightshow! Comes with sturdy case (good enough for pro use!) and exclusive DSE front panel with LED display. Detailed instructions supplied, too. Cat K-3143. **

As described in EA

Light show strobe

A must for parties, dances, discos, etc. One of the most popular kits we have ever stocked. Includes a specially designed printed circuit board for all the components, PLUS provision for adding an extra tube to double the light output - easily and economically. The kit is complete with a 180mm photographic quality reflector, especially modified so a

perspex safety guard (supplied) can be fitted. Also includes our special instruction manual and super long life capacitors.
Flash rate is variable between one and twenty flashes per second

Cat K-3152 ★ ★

As described in ETI



LED Level Meter

Here's the one the beginner can build and add to a mono or stereo amplifier to give a level meter just like those found on \$\$\$ imported amplifiers!

on \$55 imported amplifiers:
You can build one and use it to show either a mono amp, one channel of a stereo amp or sum the channel outputs and show that (instructions show how).
Or you can build a pair and have a true stereo level meter

10 green LEDs for display, one yellow for maximum power indication and one red for overload.

PCB is designed to have readout at right angles for easy mounting. Requires 10-16V at around 50mA (usually taken direct from preamp supply).

Cat K-3370 + As described in EA



100 watts RMS; 100dB signal to noise ratio at 5kHz: That's the ETI 480 amplifier. The ultimate in simplicity; even the power transistors mount on the one PCB. The PCB heatsink bracket is supplied, and the heavy duty fibreglass PCB has a silkscreened heavy duty fibreglass PCB has a silkscreened heavy to make the construction even easier! heavy duty fibreglass PCB has a silkscreened overlay to make the construction even easier! The design is based on the time-proven reliable ETI 422 power amplifier without the power transistor wiring hassles. Ideal for the home constructor or technician who wants to 'roll his own' amplifier system for home or professional use. Has on-board fuse protection. fuse protection.
Input sensitivity: 1V. Use with K-3438

power supply. Cat K-3442



As described in ETI

Ideal for home stereo systems. Same design simplicity as the 100 watt module above, but cheaper because of lower power. And there's added economy as two units can be run from And there's added economy as two units can be run from the one K-3438 power supply. An economical solution for the one K-3438 power supply. An economical solution for the one who want to update their old system without a huge outlay of money. The compact design makes this module the obvious choice wherever a medium power obvious choice wherever a medium power obvious choice wherever a medium power is 500mV. Supplied with exclusive instruction booklet and rugged fibreglass PCB with silk-screened component overlay for easy assembly. Heatsink bracket is supplied but heatsink itself is extra.

Cat K-3440 * *

As described in ETI

20 Watt Amp

A general purpose amp as used in television, tape players, musical instruments, sound projectors, etc. A handy device for any hobbyist to add to his workbench. Uses discreet transistors for reliability which provide the ideal opportunity for the hobbyist to gain an understanding of how an audio amp works

Cat K-3445

Input Impedance: 100k ohm Output Impedance: 0.1 ohm Signal to noise:-58dB with respect to 1W

Frequency response: -3dB at 45Hz &

Supply current (power): 20V(6.6W), 30V (12W), 35V (19W)



As described in EA

Stereo

Mixer Preamp

Designed to suit the 300W amp kit, this mixer preamp has 4 inputs with an impedance of 100K – suitable for most microphones, guitars, etc. Ideal also for use with 50W (K-3400) and 100W (K-3442) power amp modules. This unit provides bass, treble and presence control. Instructions supplied. ★

Short form kit: no case, transformer or power supply.

As described in ETI

ONLY



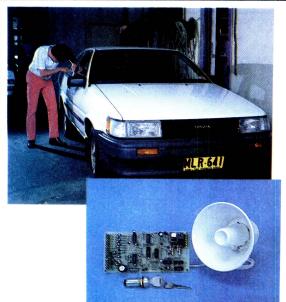
Cat K-3035



Preamplifier General Purpose

This amazingly versatile unit can be built as a magnetic cartridge preamp (for upgrading your stereo), a tape preamp or an auxiliary preamp with 40, 55 or 80dB gain. It is extremely simple: uses only one special IC and is very small, all parts fit on a PCB less than 65mm square.

It does not need a special power supply as any reasonable power supply from 10 to 40V will do. Frequency response is well beyond 20kHz. Full instructions are supplied. As described in ETI Cat K-3427



Deluxe Car Alarm

December 1983, pen Road' maga the 'Open Road' magazine (NRMA) gave ten features a car alarm should have. The best commercial sysavailable had only

tem available nad only eight. This alarm system from Electronics Australia, has nine (and if used in conjunction with the ignition killer below, has ten!) You car needs protection. Good door locks and an ignition lock aren't enough.

aren't enough.

Build this incredibly effective alarm system and your car has the best chance it will ever have of being where you left it when you return.

Ultrasonic Detector

The perfect addon kit for the Deluxe Car Alarm! The problem with 99% of car alarms is that they cannot prevent the thief who breaks a window and reaches in for the goodles. While this kit won't prevent the window being broken, it will protect your property inside the car. Silent ultrasonic rays detect any movement and trigger the main alarm system Cat K-3251

As described in EA.



Electronics Australia
LII TRASONIC MOVEMENT DETECTOR

Here's what it offers:

- Two delayed and six instant alarm inputs Delayed entry and exit times (10s each)

- Provision for auxiliary battery
 Siren output (in case vehicle horn is disabled)
 Flashing dash lamp, internal key operated on/off, etc

Flashing dash lamp, internal ke Cheap insurance for your vehicle!

As described in FA **



FREE! (Cat L-5310) Alarm sticker with any car burglar alarm.

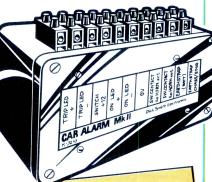
Car Alarm MK2

Includes die-cast case & terminal block

One of the most sophisticated, yet simple alarms around. It uses a triggering technique which makes it less prone to false alarms – a common problem with many car alarms, yet it will sense a voltage drop anywhere in the electrical system. For example, when a door is opened, or a jumper lead is applied to the starter, etc. It is housed in a virtually waterproof die-cast case to minimise ingress of moisture or fumes, and all connections are made to the terminal strip for easy installation and removal Cat K-3253 * *

- Includes visual alarm on' warning.
- Simple additions give you variable alarm on time, variable horn pulse rate.

As described in ETI.



Brake Lamp Flasher You've seen those snazzy lamps that mount on the parcel shelf and flash when you brake? A great idea for road safety too; you cannot avoid the flashing! New you can

Flashes the lamp three times before

Uses our A-8520 Rear Window Brake

Lamps (at extra cost). Cat K-3245

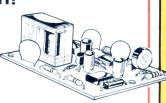


Economy Car AlarmLow cost protection!

This alarm senses the voltage drop in your car's electrical system when a thief breaks into it. There's a visual warning for thieves so that chances are they will not even attempt a break-in. Easy to install - saves a lot of trouble.

Cat K-3250★ As described in ETI

\$**43**50



Transistor assisted

Electronics Australia's high energy version of their previously incredibly popular kit. Now gives even better performance than before with circuit mods enabling high efficiency & stability, plus special radial fin design heatsink and die-cast box to get rid of that unwanted heat. Ideal for use in all conventional ignition vehicles (doesn't work real

well on diesels!) ■ Eliminates 'crossfire' problems on older 'CDI' circuits ● Dwell extension

gives longer, hotter spark ● Compatible with modern electronic tachos
Cat K-3301★★ As described in EA.

Don't spend a fortune buying a tachometer - build your own and save! Displays engine speed in an analogue form in an illuminated row of LED's. Instructions included - a great kit! Cat K-3240

As described in ETI

Ingenious but simple circuit based on a 555 timer that literally kills your car ignition and then re-sets itself, making the thief think something is wrong with the engine. The theory is he'll then go and pinch someone else's car instead. Cat K-3255

As described in EA



Be served by an enthusiast – like yourself – at your Dick Smith Electronics Store





Don't forget: we have a huge range of detection devices and output devices to add to your system see security and alarm pages (10-13)

SPEED CONTROLLER

completely new circuit offering unbelievably smooth control and torque

- even at very low rpm. Yes, it's even better than the previous model! New design includes 'in line' plugs and sockets for extra convenience.

Suits virtually all 'universal' (brush type)

And the good news is ... it's even cheaper than last year's model!!

As described in EA

Home A

EA HOME ALARM: the best protection for your home, office etc.

What a superb kit! EA have thought of just about everything in the development of this design. It offers features which you'd normally find on \$200 and more commercial units (even ours!)

- Security key operation for both alarm function and box access
- 2 instant and six delay sectors, capable of handling normally open or normally closed in any mix
- Inbuilt mains power supply with battery backup Siren (up to two speakers) PLUS bell (relay) output and also capable of driving telephone diallers, strobes, etc etc.

 Inbuilt local test facilities, including buzzer

And we've made the EA design even better: a heavier steel case, for example. And our kit includes our specially prepared

instructions - so you won't have any problems! Complete kit including case and all electronics.

Cat K-3424

Battery to suit: 12 Volt 1.2Ah Gel Cell Cat \$-3315 \$22.50

Shortwave Antenna Kit

WHY SPEND HUNDREDS OF DOLLARS ON A GOOD RECEIVER IF YOU ARE ONLY USING A PIECE OF STRING FOR AN ANTENNA?

Get the best reception from your receiver with this high quality short wave antenna



- Designed especially for Dick Smith by a short wave expert
- Complete and ready to assemble
- Needs no solderingInstructions included Cat K-3490

Microwave Leakage

Microwave ovens are fantastic - but are they completely safe? Yours could be leaking dangerous radiation! Check it out with this handy meter. No batteries required. Cat K-3095★

As described in ETI



SPEED CONTROLLER

Electric drills and saws
 Food Process

• Much, much more. Cat K-3084





With this great little kit you can sound like a Dalek, Darth Vader, a Cylon, or any one of a dozen robotic spin-offs! A versatile unit, it may also be used for special effects on electric guitars and other musical equipment.

Cat K-3509 * As descibed in ETI

Negative Ion Generator

You've heard all about Negative Ion Generators and their benefits, now buy the kit and find out what it's all about. Many and find out what it's all about. Many commercial units run from the mains, but our kit is safe - it runs on 12V DC, which also means that you can put one in your car!

Kit includes exclusive Dick Smith emitter hand nower pack and touch moulded plactice. head, power pack and tough moulded plastic case. Cat K-3335★★

Super Siren

This siren has got an ear-splitting sound yet it is compact and draws very little current. It uses a piezo-electret tweeter, which can be soldered directly to the PC board. Has many uses: as an equipment malfunction alarm, intruder alarm, car alarm (separately powered and not dependent on the car

Cat K-3505 As described in EA★



Fluoro Starter

Do your fluorescent lights go blink, blink, blinkety blink when you switch them on? This substitute electronic starter solves that problem and gives a smooth rapid start EVERY time you switch on. And all the parts are housed in a standard starter case! Far outlasts conventional starters as well as prolonging tube life. Cat K-3082 As described in EA

Give tubes longer life!

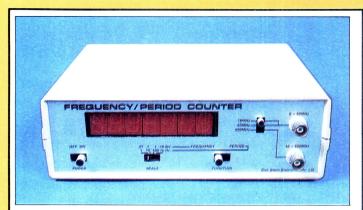
Uses old starter case! ★

Music Generator

This is a great little kit for the beginner or the experimenter. It uses a very special IC which is pre-programmed with two popular tunes: 'Green Sleeves' and 'Home on the Range'. It also has the popular 'dingdong' plus an alarm tone. A few more components and a printed circuit board complete the kit. It is intended for novelty or alarm applications. Cat K-3512 ★

As described in EA

Only Dick Smith Electronics catalogue has so much free data!



The Dick Smith 500MHz Digital

Superb design uses the latest IC technology. The low component count makes it very reliable and easy to build. It will measure frequency to 500MHz (with optional prescaler) and period both with a 7 digit resolution. It rivals the performance of commercial units costing many times the price. This kit is supplied with the exclusive Dick Smith simplified circuit board wiring, step-by-step instructions and a quality prepunched and silk screened front panel and case. Based on EA DECEMBER 1981 design Cat K-3439

Features include:

Professional design and finish, uses high

quality instrument case.

Extremely easy to build, virtually no PC board wiring and all of the switches are integrated to

the display board and front panel.

• Huge, bright high efficiency, 7 segment display.

• 3 frequency ranges, 0-10MHz, 0-50MHz, 10-

4 gating times, .0-10MHz, 0-50MHz, 10-500MHz (with optional pre-scaler).
4 gating times, .01, .1, 1, 10 seconds.
4 period measuring ranges, 1, 10, 100 and 1000 input cycles to give a 0.1 uS resolution.
High input sensitivity, 10mV to 30MHz, 100mV to 50MHz @ 1M input impedance.

High accuracy, typically better than ±.005%.
240V operated.

NOW INCLUDING DICK SMITH **EXCLUSIVE MOULDED CASE**

(50MHz version)

Pre-scaler Accessory for your counter





speedy fault finding

Not just another Transistor Tester! This one tests bipolar transistors, diodes, F.E.T.'s and even S.C.R.'s and P.U.T.'s. This practical low-cost test instrument is simple enough to be built by a beginner and then provide him with a valuable piece of test equipment. You can get experience in building, then use it to learn about the operation of semi conductors, or use it for more serious checking. Ideal for the beginner and serviceman alike, or in schools. Battery operated and supplied with one of our new 50mm meters in a deluxe Zippy case.

Requires 9V battery Cat. S-3006 85¢ extra

Amazing Value \$4

Turn your into a CRO!



Got an old B&W TV gathering dust in the corner?
Turn it into an audio CRO! That's right: this remarkable kit turns any surplus B&W (or even surplus colour) Tv set into a 300kHz audio oscilloscopel It gives a good sign loy requencies, making it ideal for Hi Fi & audio display applications. All it needs is 100mV to drive it to full screen deflection. The large screen size means that it gives a dramatic display: just think of the non-technical applications of such a device: promotions. Hi Fi showrooms etc. If you can't afford proper CRO - this could be the **★**Cat. K-3060 As described in EA

Yes, your own CRO for ONLY

ETI 480 PS **Power Supply**

Full PCB and component kit for one K-3442 or two K-3440 modules. Supplied complete with speaker dethump relay and Zener regulated plus & minus 15V preamp rails. Special assembly instructions supplied. SEE ETI Cat. K-3438★



3 Digit Counter

The most versatile counter circuit around - you can use it with a minimum of external components. Designed for maximum flexibility (display can be removed for external mounting and with a very wide operating voltage (5-15V).

- Led display
- Up to 2 MHz counting speed
- Clock enable Wide power supply range
- Very comprehensive manual incl.!

Cat K-3451★



Variable Power Supply: 30V/1A

Ideal for laboratory, amateur/experimenter or technician use. 30 volts at up to 1A - very handy! Includes full metering and overload protection. Cat K-3475

ONLY \$6500

KITS KITS KITS KITS KI



Measure the values of new and used components easily and simply. You can measure resistance, (10 ohms to 10 Megohms), capacitance (10pF to 10uF) and inductance (down to a few hundred microhenries). The RLC bridge does more than a multimeter, and is easy to use. The complete kit of parts includes a specially printed front panel. Battery not supplied. Cat. K-3468 ★ ★

> Measures unknown components

only As described in EA

Sine & Sauare wave



Covers frequencies from 15Hz to 150kHz. This is one of the most useful pieces of equipment on the experimenter's bench. This simple design is easy to build and a great performer. Runs from a 9V battery. All parts are supplied including specially printed front panel, attractive 'Zippy' case and full instructions. Battery not included. Cat. K-3469★★ As described in EA

ONLY \$4350

with digital readout

A BUILD-IT-YOURSELF BARGAIN FOR THE SERVICEMAN

With just seven IC's you get three patterns: dot, crosshatch and blank raster. Not bad value, huh? An indispensable aid for the serviceman or hobbyist - and this one's small enough to carry around anywhere. Includes deluxe front panel and VHF modulator. Operates from plug-pack adaptor (9V DC). Cat. K-3472

As described in EA

ONLY

TV PATTERN GENERATOR

VIDEO

12V

MODULATOR

Cat K-3601 *

Plug pack adaptor to suit Cat M-9525 \$4 250

Keyboard Kits

Standard 'OWERTY' typewriter layout key-board with individually switched keys (no matrix necessary!) High tactile re-sponse, suitable for a huge range of computer & allied projects. \$5390 • 60 keys

KEYBOARD KIT

General purpose keypad suitable for computers and many other projects. 14 keys mounted on board ready to install in your next project.



Video **Modulator**

NFW improved model! As used incomputers, video games, etc. Outputs on Australian VHF channel 1 (can be modified to CH 0); allows video output to be converted to standard TV input. Prebuilt, pre-aligned.



Reflector

Handy 180mm aluminium dome reflector. Suitable for strobe, small photo lights or anywhere broad light coverage is required.



Misc. Crystals

32.768kHz - Watch Crystal. Cat K-6030

\$395 3.58MHz - As used in frequency

counter kit. \$330 Cat K-6031

4.43361875MHz - Pal colour subcarrier frequency. \$ 4 50 Cat K-6033

LCD PANEL

A versatile accurate panel meter using a large liquid crystal display for low power consumption. The PC board design allows for maximum flexibility to cater for version mounting arrespondents. allows for maximum flexibility to varied mounting arrangements. The low cost makes it ideally suited as a readout device on many projects, at both amateur and professional level. Cat K-3450*

Features: Display: Full scale reading: Full scale reading:
Accuracy:
Resolution:
Polarity:
Input impedance:
Input bias current:
Conversion method:
Reference:
Power supply:

3½ digit LCD 200mV less than 1 digit 100uV automatic automatic greater than 10'2 ohms ±2pA dual slope internal 100ppm ±5V to ±15V dc 1mA @ ±5V

CHECK THESE FEATURES:

other build-it-yourself test equipment.

Frequency range from below 20Hz to 170kHz in three

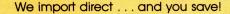
very wide range of output levels too. An ideal companion to our

- Continuously variable output level from 3mV to 2.5V peakpeak.
- 600 ohms (nominal) output impedance Sine, triangle and square waveforms,
- Sine wave distortion of less than 0.7% at 1kHz; 1% at 10kHz and 2% at 100kHz.
- Triangle wave linearity better than 1% at 1kHz.
- Square wave rise-time of 0.4us (6V/us at maximum output
- Negligible overshoot, droop or ringing
- Readout accuracy ±2%±one digit.

 Amplitude stability better than 0.1dB on all ranges.
- Power consumption of 7W at 240V AC. Cat. K-3520★★ SEE EA

As described in EA

FUNCTION GENERATOR





Where it all began! The best

selling manual now used as an introductory textbook in countless schools, colleges, youth groups, etc etc around the world.
Fun Way 1 assumes you know absolutely nothing! It

will show you what the components look like, how to connect them into the circuit, even how to go on with further experiments with your circuits when they are finished.

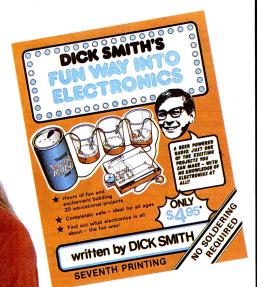
For complete safety, no soldering is required. All components are connected by screwing them into our unique 'breadboard' system with cut-out plans showing where the components actually fit.

And even more: you'll learn what each circuit symbol looks like as

you use it! Cat B-2600 Fun Way 1:

The ideal introduction for beginners from 6 to 66!

\$495



vou will need: Fun Way One Project Kit 1 - 10



Enables you to build any of the first ten Projects in Fun Way One. And because the components are not soldered, they are all reusable so you can build any other of the first ten projects, too.

To build these projects you will also need:

Fun Way Project Kit

DICK SMITH'S FUN WAY INTO ELECTRONICS

Contains the more

Cat K-2610

specialised components required to complete the last ten projects (11 - 20) in Fun Way One. Note: you will also need the 1 - 10 kit above to build these projects.

10 TECTS 11-20 \$7.90

11 - 20

1. Continuity Indicator Just like a multimeter –it will show you if you have a complete circuit or an open circuit. A light emitting diode glows if the circuit is complete.



2. Transistor Tester As well as telling you if your transistor is okay, it hows you how transistors work!

3. Water Indicator Do your plants need a drink? This simple circuit will tell you how much water is in the soil!

4. A Light/Dark Indicator
Using a light dependent resistor, it will light a LED if light falls on it.
The type of detector used in some alarge. used in some alarms.

11. Sound Effects Generator Ever wondered how many of these sound effects are made in the movies? Build this and you can make some of your own! your own!



12. A Crystal Set Free radio - no batteries to buy, nothing to turn off! Listen in to your favourite station!

13. One Transistor Amplifier

Build your own amplifier: it can be used with the crystal set and other projects if you wish!

5. The Flasher Want to add flashing lights to a model train layout? This project will do it for you!



6. An electronic Siren A mini version of the siren on Police cars! Fantastic to add to toys!

7. Dog and Cat Communicator
Dogs and Cats can hear
sounds we can't! You could be able to talk to your pup in secret sounds!

4. Beer Powered

14. Beer Powered Radio Yes, it actually runs on beer (or Coke!). Listen in (as long as you don't drink the battery!)



15. Two Transistor Amplifier Even more power - enough to drive a speaker so you can listen in without headphones.

16. The World's Simplest Transmitter.
Just like the young
Marconi, you can
transmit Morse Code across the room!

17. Voice Transmitter Imagine being able to transmit your voice to a radio set! This project makes it easy!

8. A decision Maker As used by top executives and politicians! Just press the button and it will decide for you: Yes or No!

9. Morse Code Communicator Amateur Radio operators send Morse code all over the world. You can learn the code too (or send secret messages!)



10. Music Maker Your own electronic organ. And it really will play simple tunes, too!

18. CB Radio Receiver Listen in to the truckies and other CBers. And you don't have to spend Z\$\$\$ on a CB!

19. Amateur Radio Receiver A radio receiver to listen in to ham operators plus other stations in the 2 -6MHz bands.



20. Radio Booster Amplifier A radio frequency amplifier to give other radios even better reception.

All the components AND Fun Way 1 book in a great pack everything needed to build any of the projects in Fun Way 1! PLUS our specially manufactured re-usable plastic 'breadboard' - a great way to build not only the Fun Way 1 kits, but also to 'mock-up' other circuits as you become more experienced

AND EVEN MORE! Everything is housed in a multi-division plastic tray, which is fantastic for housing components in, both now and in the future.

The Fun Way 1 Gift Box makes an ideal birthday or Christmas present... and who knows: it could be the start of an absorbing lifetime hobby in electronics, or even an exciting career

GIFT BOX Here's what you get:

● 24 resistors ● 18 capacitors (including a variable ● 24 resistors ● 18 capacitors (including a variable type) ● 2 transistors ● 1 integrated circuit ● 2 LEDs ● 1 light dependent resistor ● 1 diode ● 1 potentiometer ● 1 speaker ● 1 ferrite rod aerial ● 1 crystal earphone ● 1 audio transformer ● 1 battery clip ● hook-up wire ● baseboard ● screws & washers • the re-usable plastic parts tray PLUS a copy of Fun Way Into Electronics, Volume 1.



You've built all the projects in Fun Way 1 - and looking for something new. Something bigger. Something better. Something more exciting . . .

Here it is: Fun Way Volume 2! It takes over where Fun Way 1 finishes, with 20 exciting new projects to try out.

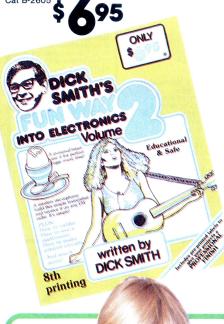
But these projects are different! They're all built the modern way - on printed circuit boards. Which means, of course, all components are soldered into position.

Don't know how to solder, or use printed circuit boards? No worries, Fun Way 2 teaches you how. You'll find out how to get a good solder joint, and how to avoid the pitfalls

And the projects themselves have all been specially chosen to be 'useful'. Just look at the project on the right and you'll agree! They're all battery operated, so there's

Also includes features on pioneers of electronics, plus 'how to use a multimeter'.

PLUS! Specially printed labels to make your circuits look really professional! Great for school projects, too!
Cat B-2605



FUN WAY

There's something here for everyone! Safe - simple - economical - fun! Each kit contains brand new, guaranteed components.

1 Flasher



Make it as the latest in electronic jewellery, or a burglar warning light, etc. The choice is yours and it's easy! Cat K-2621

2 Ding Dong Doorbell

Yes, it actually sounds like a great old fashioned doorbell. But it's electronic: and you can build it! Cat K-2622 \$450

3 Morse Code **Trainer**

You can turn this audible alarm into just about any-thing requiring sound. Even for Morse code – and it's fun to learn! \$650 Cat K-2623

4 Universal Timer



Eggs too hard? Time them with this great little timer. It really works – set if for a few seconds to 15 minutes! Cat K-2624

5 Electronic Dice



Just as much fun using it as it is building it! And it is really random—no cheating with this dice! \$495 Cat K-2625

6. Mono Organ

Snazzy little circuit uses the back of the PCB as the keyboard! Play a tune - it's 795 easy. Cat K-2626

7 Pocket Transistor Radio

Building this small set will teach you a lot about the fundamentals of radio. And then you'll have fun using it \$**7**95

Cat K-2627

8 Touch Switch

Ever wondered how those lift buttons worked? Build this touch switch yourself and you'll be able to work it out. Variety of functions explained. Cat K-2628

\$**5**50

9 Mosquito Repeller

Do mozzie repellers really work? Build this one and find out. Based on university research, intriguing! You won't hear it – but the mozzies will \$495 Cat K-2629

10 Intercom Amplifier

Use to make the intercom (project 18) or use as a general purpose amplifier. Really handy, good sound output too.
Cat K-2630

\$650

11 Wireless Mic.

Just like the 'bugs' used in spy movies! Transmits to any standard FM radio in another room or next door. etc. You can really hear it all! \$650 Cat K-2631

12 Light Activated Switch

Useful in many security ap-Useful in many security applications around the home etc. If a light goes on, the switch works. You could even use it to trigger a burglar alarm.
Cat K-2632

13 Metal/Pipe Locator

Extremely handy for locating pipes, wires, etc in walls before drilling holes. Sur-prisingly effective for such a simple circuit. Cat K-2633

\$650

14 Sound Activated **Switch**

Picks up sound and triggers. Use as a telephone bell extender without breaking Telecom regulations. \$695 in security applications. Cat K-2634

15 Home/Car Alarm

Very practical! You could use this alarm to protect your home and property! Uses any of the normal alarm triggering devices Cat K-2635



16 Electronic Siren

Just what you need with the alarm! Also makes a great sound effects circuitand Fun Way 2 tells you what to do!

\$495



17 LED Level Display

Hook it up to your stereo and it can warn you of dangerous overloads. Looks pretty nifty too – the LEDs light up in time to the music! Cat K-2637

\$895

18 Intercom Unit

Build your own intercom & use it around the home. Practical, simple to build with the intercom amplifier above (Project 10). Cat K-2638

\$895

19 LED Counter Module

A perfect introduction to the world of integrated circuits. And this useful counter can be used for a huge variety of counting applications – or just for fun! **\$7**95 Cat K-2639

20 Short Wave Receiver

You will be able to tune a variety of short wave stations or, with simple modifications, emergency services and amateurs, etc. Easy and fun to build. Cat K-2640 \$695



PLEASE NOTE:

These kits do NOT include instructions. All information is published in Fun Way Vol. 2, which is necessary before construction can begin on any kit.

NOTE: Cases shown are not included in basic kits.



Here's a gift bargain! Over \$28 worth of value for less than \$25! This gift pack has been specially selected for quality and for value.

GIFT PACK

You get:

A copy of Fun Way Volume 2. A quality Dick Smith Soldering Iron. A pack of solder. A 9 volt battery

PLUS: A 'Wireless Microphone' Kit (kit 11 above) - by far our most popular Fun Way kit!

- it keeps on giving!

Give a Fun Way 2 Gift Pack \$ 22495

Cat K-2620



Another 100 pages of fun: that's Fun Way Volume 3. It's the logical progression for those who have worked through Fun Way Vol 1 and 2.

It's for the more advanced hobbyist, because Fun Way Volume 3 projects are all based on Integrated Circuits. There are ten projects in the book, but many of the projects can be built in a number of forms - so there are virtually as many 'individual' projects in Fun Way 3 as there are in the other two books.

And because the Fun Way 3 projects are more complex, they are dealt with in rather more detail. More explanation, more construction details - so you learn much more with Fun Way 3.

But the projects are just as fascinating to build, so they're still FUN! Have a look at the projects at right, and you'll see that there really is a great range - something for everyone!

And they're even more fun to play with when they're built. Like Fun Way Two, Fun Way Three includes deluxe project labels printed on specially coated paper in the back of the book. Use these with Zippy Boxes, and your project looks a million dollars!



Here are the exciting Fun Way 3 projects, each of them fully explained in Fun Way Into Electronics, Vol 3. You can't go wrong be-cause all the instructions are right there in the book along with useful tips on how to really make your projects look snazzy with the labels supplied in the book, how to fit these into zippy boxes . . .

Your projects will be real

3 Cricket



Here's a ton of fun! Hide the cricket: when the lights go out it starts chirping. Turn the lights on or make a noise and it stops. Makes it so hard to find!! It really is infuriating! Cat K-2663

\$**Q**95

6 Mini Colour Organ

Your very own disco colour organ - but ours is battery operated - so it's much safer than mains devices! Connect it to your radio, cassette or stereo for a real lightshow Cat K-2664

\$695

9 Binary Bingo



fun game - but even more it demonstrates binary numbers very well. And they're the basis of all computers! It seems pretty simple to play . . . but try it!

Cat K-2668



1 Light and Sound

What versatility! It's really 6 projects in one: you just build the form you want - a LED flasher, a mini strobe flasher, police siren, motor boat sound effects, con-tinuity tester and Morse Code practice oscillator. Cat K-2665 \$695



Want an amplifier for you 'walkie' stereo or radio? Don't be tied to 'phones: use this project and listen in comfort! Or you can build this into a mini PA amplifier. Cat K-2667

0

Combination Time Lock Switch

You can make a game - or make a real electronic 'lock' with this one. Use it to control an alarm, a door control, etc. You set the combination you want - or change it when you wish. Try and beat this one - if you can! \$**8**95 Cat K-2666

10 Mini Synth

It's a real beauty, this one: a real 'live' musical synthe-siser - and it's live because it uses YOU as the note generator! You get an amazing range of control over the sound. Cat K-2669

\$4 295

2 Two Up



Australia's 'national game' has finally been converted to electronics. And you don't have to find any King George pennies! Simulates the throw, the spin and the final result. Come in spinner! Cat. K-2661



C'mon, Guvnor - leave auto alone. That's the Fun Way 3 Minder telling villains that it is looking after the car! It's actually doing much more - makes a great 'lights on' warning and 'door open' warning as well as a pseudo burglar alarm. \$<u>**1**</u>95

AAA

8 Lil Pokey

You'll have a ball with this one - and you don't risk losing a single cent! A digital project which not only shows how the one armed bandit works - it teaches you how logic circuits work, too. Cat K-2662 \$**44**95

And when you've finished Fun Way 3???

You're ready to build just about any of the kits from the Dick Smith range - and that's a lot of kits to choose from!

You'll be able to solder properly, identify all com-ponents, read circuit dia-grams, even use test grams, even use test equipment!

You could even be ready for a career in electronics! And it all starts with Dick Smith's Fun Way Into Electronics.

And what value! Buy this kit with two of the most popular kits in the Fun Way Three book ... and we throw in the book FREE! Yes, you get both the Electronic Cricket project (known to his friends as Nocturnalis Stridulus Grillidae) plus the Miniature Amplifier project together valued at \$24.90, and as a bonus, the Fun Way Three book itself at no extra charge!!

Fantastic gift idea ... also makes ideal school project material. And this book gives details on how to really dress up your kits for top presentation . . . and top

Whether you want to learn more about electronics, or just have fun building interesting circuits, you won't do better than with Fun Way Into Electronics. And with Fun Way 3, you really move up into the electronics 'big time'. This fantastic bonus pack will get you started!

Cat K2670



TOOLS TOOLS TOOLS TOOL

Buy now, pay later . . .

Any of our stores will be glad to discuss easy term payments (to finance company approved applicants). Just ask!

Economy Wire Wrapper/Stripper

Sometimes the best tools are the simplest! That's the case with this 'nofrills' wire wrapping and stripping tool: puts professional style wire-wrapping techniques within reach of the average hobbyist. Cat T-3650



Lug Crimping Tool

For quick, reliable connections crimping beats soldering anytime! Do it easily with this versatile crimping tool - it also cuts and strips wire! Complete in pack with lugs ready to use. Great value - and a must for your workshop! Cat T-3520



Economy Wire Stripper

Large adjustable range. Hardened jaws will last a long, long time. Great value at around half the price of other makes. Cat. T-3630

0



Deluxe Wire Stripper

This is a completely automatic wire stripper. Only one hand operation is required to complete stripping operation. The multiple sized head allows a wide range of wire from 1mm to 3.2mm to be stripped. Ideal unit for servicemen, TV technicians, hobbyists etc. Cat T-3620



Scissor Clamps

Made of stainless teel with screw joint. These scissor clamps are 127mm long so they will reach hard-to-get-at places. They can be used as a third hand for small items as they can be locked on to the article they are holding



Adjustable Blade Trimming Knife

A comfortable hand knife you'd have to pay more for elsewhere! Our low price doesn't affect high quality. Comes complete with 5 surgically sharp carbon steel blades. Fits Stanley type



HOW CAN WE SELL TOP QUALITY STAINLESS STEEL TOOLS AT SUCH **AMAZING PRICES?**

It's easy! We import direct!

At last a range of stainless steel tools - without the normal stainless steel price tag! Every professional, every hobbyist needs the best tools to get the best job. But they used to cost a fortune – until Dick Smith Electronics stainless steel tools came on the scene. Amazing value - they'll last far longer than other tools, are ultra precision made and resist corrosion! Carefully chosen types for practical applications.



S/S Transistor Nipper

Ideal for pcb work. Very sharp precision cut with long life cutting edge. 95mm body with \$895 spring return. 9mm cutting blades. Cat T-3205

S/S Mini Flat Nose Plier

Non-serrated working surface to avoid damaging components. Also great as heat sinks because of larger component contact area and wide nose absorbs lots of heat, 4mm wide blade, Cat T-3325



S/S Mini Needle Nose Plier

Precise, non-serrated tip and jaw. Ideal for use with semiconductors – the very fine (1mm) tip will reach into places others won't! Cat T-3570

S/S Mini Long Nose Plier

Heavier duty serrated jaws with high gripping power. Ideal for component removal or mechanical parts manipulation. Jaw 2.75mm wide.

ECONOMY TOOL RANGE

Mini Diagonal Cutting Nipper

Drop forged steel construction. Cutting edge tempered and honed. Chrome plated finish with soft plastic handles. Length 100mm. Cat. T-3561

Long Nose Plier

This tool has a fine tip and serrated jaw for general use. Built-in cutting edge, chrome plated with insulated handles. Length 125mm, jaws 40mm. Cat. T-3250



This nipper/stripper has sturdy insulated handles and a positive cutting edge. It features two very handy wire stripping holes, one of 1.2mm and the other 1.6mm making it a very versatile tool. Length 125mm, cutting edge 22mm. Cat. T-3220

Side Cutting Plier

This is a hard working tool for linesmen, electricians and general purpose use. Made of sturdy gunmetal with a polished finish and insulated handles. Has flat serrated jaws with inbuilt cutting edge. They represent excellent value. Length 150mm, jaws 25mm. Cat. T-3270



The world's most under-rated tool!

Deluxe Pin Vice

Why the world's most under-rated tool? It's only when you start to use one of these that you realise just how handy they are! The pin vice is a small hand tool that looks a lot like a jeweller's screwdriver – except that it

has no blade. Instead (and stored away inside the body) are two double-ended locking collets that can be used to hold just about anything round from 3mm down to virtually nothing.

That could be small drills (fantastic for drilling PCBs!), screwdriver blades (now you don't have to throw broken blades out!) awl points, scribers, reamers, needles and pins, etc etc Quality made with heavy chrome plating, 5 pieces in set. Cat T-5115

The 'Claytons' drill - the drill you have when you haven't got a drill!

Super sensitive

netal locator

How often have you needed to find a nail in a wall or in a piece of timber, locate a water or gas pipe, reinforcing steel in a building, wires and cable behind plaster? This little beauty will do just that, and lots of other jobs requiring metal location. Has sensitivity control that can be adjusted from the smallest nail to the largest R.S.J. Indication light comes on in the presence of metal up to 6" or more. (Range depends on size, shape and type of metal). Operates from a single 9V transistor battery. Ideal for plumbers, electricians, builders, handymen etc.

builders, handymen etc

DOLS TOOLS TOOLS T

Screwdrivers

range of screwdrivers has been chosen because it represents many different types of applications. Depending upon type, you can work on the most delicate of instruments up to motor vehicles. They are made of virtually unbreakable, flame and shock resistant high impact plastic. This applies to the 45, 41, 61, 71, 81 and 82 series of screwdrivers. Code: L-Blade length, D-Blade width, H-Handle

Mini Drivers



This really is a miniature screwdriver! Ideal for small jobs like the magnetic cartridge in your turntable, jewellry etc. Yes they are that small!

L-30mm, D-1.6mm, H-25mm x 7mm

Cat. T-4010 ... FLAT BLADE ... 55¢

Cat. T-4020 ... PHILIPS ... 65¢

Stubby Drivers



These are really great for confined spaces or for a job that needs a bit more leverage than you would get with a slimmer handled screwdriver.

Cat. T-4065 PHILIPS PHILIPS

Baby Drivers

(Series 61)



. L-50mm ..65¢ Cat. T-4075 L-100mm

Philips (Series 82)



This series covers all of the most popular Philips

screw sizes. L-75mm, D-3mm, H-54mm x 12mm Cat. T-4030 L-100mm, D-4mm, H-75mm x 15mm

TV Alignment Kit



A versatile set of four general purpose tools to cover all shapes & sizes of cores. They are made from tough plastic. Cat. T-4540 \$3.50

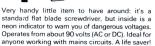
Screwdriver Type

Ideal for the handyman & TV technician this plastic screwdriver has a steel spring tip. Suitable for trimmers and mini IF's.

Cat. T-4510 Cat. T-4520 100mm\$1.75\$1.95

Neon Tester_{1,000's} Screwdriver sold!

\$**4**65



Popular (Series 71)

This has been voted the most used size. The medium size makes them ideal for general irpose work

D-4.5mm, H-73mm x 16mm . L-75mm L-150mm

Heavy Drivers



This series is ideal for the tradesman. The heavy duty makes them useful in the automotive work

Cat. T-4100

6 Piece Jewellers

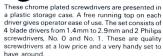
Set



These are beautifully made screwdrivers, chro plated body with a free running knob on the top. The

6 Piece Precision

Set



20 Piece Metric **Utility Set**

This set has to be seen to be believed, 20 piece nickel chrome molybdenum steel with chrome plated handle presented in a handy transparent plastic box. The set

3 x blade screwdrivers: 1.5, 2.5, 3.5mm, 2 x Phillips screwdrivers: No. 1 and No. 0. 3 x hex Allen keys: 1.5 2.0. 2.5mm, 5 x open end spanners; 4.0, 4.5, 5.0, 5.5, 6.0mm, 5 x spintights: 3.0, 3.5, 4.0, 4.5, 5.0mm, tommy bar. 1 awl. 1 handle assembly. You will be proud to have this excellent quality set in your tool range. Great value for money!

EXTRACTION TOOL

The perfect way to remove IC's without damage. Works with all DIL packs, no bent pins and no static damage! Operates like a pair of tweezers - with hooks! Cat. T-4650

IC Insertion Tool

How many times have you damaged expensive IC's simply because you couldn't place them properly in the PC board? Well your troubles are over with this superb IC insertion tool. It will handle 14 and 16 pin DIL package ICs with ease and will take the frustration out of IC Insertion

Cat T-4640 \$695

Pearl Catch

For reaching into awkward places. 3 pronged tweezer with syringe action. A must for small nuts, washers etc. Great for servicemen, jewellers, hobbyists, etc.



Pointed

Great for holding small nuts, components and delicate instruments, wires etc. Also great for removing ticks! Fine points. Cat T-4620



Serrated Jaw

Has flat serrated jaw for positive grip. Cat T-4630



Allen key set

Allen screws always turn up when you least expect them to! So here's an ideal set for the workshop. 7 gunmetal finish Allen keys in a plastic wallet. Sizes 1.4mm, 1.5mm, 2mm, 2.4mm, 2.5mm, 3mm, 4mm. They are ideal for most European and Japanese equipment that have Allen







LS TOOLS TOOLS TOOL

RLEC SUPERTOOL

What versatility! It drills, It sands, It polishes, It cuts, It engraves, It erases, It mills. It's one of the handiest tools you can have in your arsenal! This fantastic hobby machine is a 10,000 RPM power head which does all of the above with the attachments supplied. And because it operates from low voltage (240V plugpack included!) it's safe. Includes the Supertool and plugpack, 2 milling cutters, 1 wire brush, 1 grinding wheel, 4 high speed steel drills, 5 chuck collets (0 to 4mm), eraser sticks and instructions. Cat T-4754



Supertool Accessories

Set 4 PCB Drills

Top quality high speed steel twist drills in all popular pcb sizes: 1.2, 1.0, 0.8, and 0.6mm. Cheaper than buying singly! Cat T-4756 495 set

Grinding Bits

Shape, sand and grind your projects to perfection. 3 pieces, different shapes. Cat T-4758 \$675 set

Cutting Discs

Set of 6 mini cutting discs, with arbor, for cutting metal and plastic. Essential for the serious hobbyist. Cat T-4766 \$795

Engraving/Milling Bits

Set of three cutters designed to make short work of any engraving or milling job. Fine and medium hex head plus fine round head. Cat T-4764 \$495

Erasers

Make short work of rubbing out! Two different types to cover both ink and

Set 5 ink Cat T4760 \$320

Set 5 pencil Cat T-4762

IGH SPE

For the hobbyist, technician, toolmaker, etc... this superb mini drill kit is hard to beat. Very high speed - up to 30,000 rpm (depending on voltage used) with a high torque, it's great for drilling, polishing, grinding, deburring, engraving, routing, buffing, carving, sanding, etc etc. Kit comes complete with four high speed steel twist drills, three collets, grinding bit, spanner and tommy bar, plus DC power cable and plastic

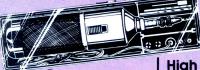
- 12-35V DC operated (external)
- Chuck sizes 0.4-1.5mm, 1.7-2.9mm, & 2.8-2.4mm.
- Weight only 400g, size 105mm x 42mm
 diameter.

Stand to Suit

A convenient stand to suit the Mini PC Drill

designed to make





Set **High Speed** Steel





MINIATURE HIGH SPEED TWIST DRILLS

Suitable for PC Board work

No. 6 (1.0mm) No. 65 (0.8mm) Cat T-4820 \$495 Cat T-4825 \$495

piece Tool

Cat T-4830

\$**4 9**95



- pack (you'll never lose them!) 5 open ended spanners 4.0 - 6.0mm
- 2 Phillips Head screwdrivers
- 3 Allen key drivers
- 5 Nut Drivers 3.0 5.0mm 6 Flat screwdrivers
- 1 tommy bar

Quality Japanese made - a complete set for the hobbyist or technician.



Die Set

6 piece metric die and die stock holder hinged plastic case. Contains 2mm, 3mm, 4mm and 5mm dies, plus dual handled die stock holder. Complete with ins-

\$2950

Tap Set

5 piece metric tap set: 'pigeon pair' to above die set. Also contains 2, 3, 4 and 5mm taps and 4 jaw tap holder. Housed in plastic wallet for safe keeping. Cat T-4910



Piercing (Fret) Saw

An absolute MUST for the modelmaker, hobbyist, etc. Fully adjustable universal type saw frame, complete with 3 blades. NOTE: because it's fully adjustable, you can even use broken saw blades - never be caught again!!!

Quality Japanese made. **4**25 Cat T-4965

Spare Saw Blades

Even though you can use broken blades. you're going to eventually need replace-ments! Your choice of three special SKS alloy blades in packs of 12:

Extra Fine: (Type BO) .29mm x 53 Cat T-4966 teeth/25mm

(Type B2) .34mm x 47 teeth/25mm Cat T-4967 Medium: (Type B6) .42mm x 32 Cat T-4968 teeth/25mm

pack

Nibbling Tool

A unit that can cut any shape opening in sheet steel to 0.6mm thick or light alloy to 1.5mm. Ideal for plastics too. Easy to use, gives good clean cut without distortion. Follows curved or straight lines with ease. Put one in your tool box today! Cat T-4940

\$**4 6**50

Hole Punch Set

Ideal chassis basher tool, in fact a necessary tool for anyone who needs a large hole cut through metal. It's easy to use, needs no filing and it will cut a hole without distortion. The complete set includes a 12mm tapered reamer, tommy bar, 5 punches - 16mm, 18mm, 20mm, 25mm, and 30mm. Individual chassis punches bought separately would cost a lot more than the price being charged for the whole set! Will handle steel to 22 gauge and aluminium to 16 gauge. Cat T-4900



Tapered Reamer

An ideal tool for enlarging holes on thin metal, plastics, wood etc. Great for chassis bashers, hobbyists, servicemen. Made from the highest quality heat treated steel, comes complete with tommy bar. Tapers from 4mm to 22mm. Cat T-4920

Needle File Set



This handy set of files has five different types, all 185mm in length. The types are round, square, halfmoon, triangular & rectangular. Cat T-4960

Steel Rule

300mm hardened spring steel with deep etched black graduations.

Non-rusting, complete with \$345 plastic sheath. Cat T-5145

PCB TOOLS Dalo Marking Pen

Essential for precision marking of boards prior to etching. Unique press-tofeature enables adequate dye when mark ing the board. Cat T-5170 \$765

PC Marking Kit

INCLUDES SPARE TIP

Contains two colour pens for easy identification plus an eraser. Used direct on pcb foil. Ideal for repairing photoresist, making small one off pro-

totypes. Cat T-5175 \$725



Spot Face Cutter

Removes copper from around holes in Veroboard or PC boards. \$399 Cat H-5176

Cat T-4752

TOOLS TOOLS TOOLS TO



CRC

Save dollars on Quality Servicing Aids

MATTE BLACK **SPRAY PAINT**

A quick drying matte finish spray. Suitable for giving your project that professional finish. Ideal for spraying heatsinks to increase the efficiency. 175 grams.



A fine colourless spray that is ideal for the protection of front panels, etched screen or Letraset lettering. Will moisture proof components, TV aerial terminations etc. 125 gram can. 395

> **IDEAL FOR ARTISTS TOO**

CRC 2-26 SPRAY

A moisture removing, cleaning pressure pack. Not only does it clean, but it also leaves a film of protecting silicone that does not dry out. Ideal for pots, switches and contacts. Ideal for loosening stubborn nuts and bolts. Will protect your car from salt and moisture. Use it on the ignition systems to stop frustrations during weather starts. 400 gram. Cat N-1060

\$**8**75



SPRAY CLEANER

A cleaning and degreasing moisture removing spray. It is non-toxic, non-explosive, non-inflammable. Can be used on rubber or plastics as well. Leaves no residue, suitable for electronic & electrical components, computers, tape recorder heads and mechanisms, clocks and watches, jewellery - in fact even the most delicate equipment. Complete with long range nozzle. grams. Cat N-1051 \$325



FLUX REMOVER

At last a can of flux remover. Fantastic service work technicians and for cleaning up messy solder jobs! 400g spray can. Cat N-1055 \$875

ELECTRONIC CLEANING SOLVENT



A highly efficient, high pressure solvent highly recommended for cleaning tuners. switches, plugs and sockets, commutators, potentiometers, relays, etc. Non-corrosive, low toxicity. Complete with long tube. 300 gram pressure

Cat. N-1040

CK SMI reez.

FREEZER

Instantly freezes components down to minus 50 degrees Celsius! Ideal for servicing electrical & electronic equip-ment with intermittent problems. Also shrinks shafts, bushes, etc; cools compo-nents while soldering. Complete with long reach tube. 350g spray can.



LACQUER

A specially formulated spray for the protection of PC boards. This is a solder thru lacquer so boards previously sprayed with PCL-2 can be soldered in service. Pressure pack can 350 grams

Cat. N-1045

\$595

SILASTIC

ADHESIVE/SEALANT

Adheres to metals, glass, paint, ceramics, most plastics and wood. Ideal for mending leaks in fish tanks, roof tiles, windscreens etc. General purpose one part silicone cement.

Cat N-1225

\$440

HEAT SINK COMPOUND

This heat transfer compound is applied to the base and mounting studs of transistors and diodes. It is also an effective thermal coupler for any heat sink device where efficient cooling is required. Cat N-1205

\$4 85

SUPER GLUE No clamping required, no

mixing, no mess. Sets in seconds. Has thousands of applications.

Cat. N-1220

IT'S SUPER STRONG!



Top quality PVC tape. 18 metres long x 19mm wide x 0.2mm thick.



ELECTROLUBE 2X LUBE PEN

mechanical lubricant, packaged in pen form with a pocket clip. The pack has a unique retractable tube system to reach into those naccessible areas. drying lubricant for use with electronic gear, automotive, office and domestic equipetc. Ideal servicemen. Cat N-1047

\$**4**95

Fine products at low, low prices!

COMPONENT CABINETS & DRAWERS

16 Drawer Cabinet

Components . . . nuts & bolts . . . bits and pieces . . . you'll find them all much more quickly and easily with this superb 16 drawer cabinet. Clear (see-through) drawers makes life even easier. Cabinet size 300 x 180 x 140mm - and you can stack them for even more storage. Each drawer 65 x 137 x 35mm, and includes a divider in each drawer



BOTH TYPES: \$ **3**25 **Compartment Case**

Made of extremely strong plastic, with clear lid so you can see exactly what's inside. The internal compartment holders move so you can suit it to a huge variety parts, nuts & bolts, bits & pieces, etc Sliding catches ensure the lid stays Silding catches ensure tine ito says closed: even if you drop it! Consists of case and two tiers of trays and one extra deep tray. Size 290 x 220 x 45mm. A must for the hobbyist! Cat H-2596



Stackable Drawers

Total flexibility: that's this superb drawer system from Dick Smith Electronics. Large (114 x 57 x 130mm) cases containing either one or two drawers. Precision dovetail system means you can stack them both vertically and horizontally. Large handle on each drawer plus index card slot.

One drawer per box: Cat H-2584 wo drawers per box: Cat H-2585



TOOL AND WORK BOXES

Economy Tool Box

Tough polypropylene opening tool box, brilliant red (very difficult to misplace!) ready to hold tools, test gear, components, even fishing tackle, stuff for your car . . . you name it! Big 435 x 190 x 180mm, with a five compartment 'lift out' tray inside, revealing a deep storage area. Complete with clasps and provision for a padlock, it's ready to take on the really tough stuff. Famous 'Nylex' brand: made in Australia. Cat H-2601



Deluxe Tool Box

OPENS OUT FOR ALL COMPARTMENTS!



The deluxe job - with the deluxe features! Even better than the above tool box, this one opens up to reveal two elevated 'pop up' trays with enough compartments for elevated 'pop up' trays with enough compartments for all those bits and pieces you usually leave floating around the box! And underneath is a storage area for bigger tools – even soldering irons and hammers! Tough, impact resistant PVC, measures a large 430 x 230 x 200m (closed). And it's not just for the electronics

enthusiast, either

- Fishing tackle
- Artists materials
- Sewing materials

Cat H-2600

TOOLS TOOLS TOOLS

Unbeatable value in soldering irons:

DSE low cost soldering iron.



Looking for top value in a soldering iron? Maybe it's your first iron, and you're totally confused by all the different models. You can't go past the low cost Dick Smith 240V Iron: It's general purpose mainspowered iron that's ideal for all those hobbyist and technician solder jobs. Comfy,

tapered handle and nicely balanced iron for hours of fatigue-free use.
Stainless steel barrel and 240 volt, 20 watt element is just right for most assembly or repair soldering - and its low, low price means it's ideal for production line use as well as for the hobbyist.

Great beginner's iron. too! Comes ready to use with a small piece of solder for 'tinning' the bit plus full soldering in-structions. Cat T-1330

Solder Stand to Suit

Protect the iron (and more importantly the workbench!) from damage or burns. Spring holder keeps the iron at bay, sponge makes tip cleaning easy. \$50

Spare Tips to Suit:

Cat T1301

Keep a couple handy

- just in case!

\$ 4 00

Lightweight easy-to-handle



Miniature 12V

Take a look at this superb 12 volt AC or DC soldering iron. And when we say miniature we mean MINIATURE! Not much larger than a pencil in length and not much thicker either. What an ideal iron for those PC board jobs. It is also light and easy to handle that even the most inexperienced soldering fiend will be able to use it. It comes complete with lead and is rated at 6 watts which is ideal for all small component lead soldering. No more are you tied to a lumbering old iron for those delicate jobs. just get the Dick Smith miniature 12V iron. Cat T-1920

INCREDIBLE S VALUE

SPARE TIPS TO SUIT

Wedge Copper Tip
Cat T-1921 \$ 220

Cone Copper Tip
Cat T-1922 \$ 220



Scope transformer

The ideal transformer for the Scope irons. Mounts on or under the bench. Can be used with any tool requiring around 3-4 volts AC. Completely safe. An earthed in-sulation shield prevents capacitive coupling and possible voltage leaks. Great for any hobbyist, serviceman etc.

WHAT A \$ 3

SCOPE quality at affordable prices

SUPERSPEED

This is the professional iron for those who are serious about soldering. It has a huge 150 watt capacity with features only found on the more expensive irons Thumb operated ring on the handle supplies heat in 6 seconds!

Delivers the right amount of heat at the right time. You can operate the scope from 30 amps AC or DC or from the special transformer. You can dictate the temperature and wattage to do

your job. Stainless steel non-corrosive barrel. Comes complete with spare tip and element. Great for any serviceman or hobbvist!

Cat T-1605

MINI-

Has all the advantages of bigger irons and it's small size makes it easier to handle. Finger tip control of tip temperature equivalent of irons 10 to 70W. Complete with spare tip and element. Cat T-1660

Superspeed **Spares**



		-3
- Summonmon		-
Copper Tips (standard	T-1610	\$1.15
Copper Tips		
(standard instrument)	T-1612	\$1.15
Stainless barrel	T-1616	\$13.25
Elements (carbon)	T-1618	\$1.15
Bead retaining nut	T-1620	55¢
Bead ceramic	T-1622	35¢
Push rod assembly	T-1624	\$8.55
Return spring	T-1626	\$1.60
Flex lead	T-1628	\$12.95
Bakelite lock nut	T-1630	\$2.80
Brass nut	T-1632	\$2.20
Handle complete	T-1634	\$17.95
Switch ring	T-1636	\$3.10
handle	T-1638	\$10.95
Grommet	T-1640	\$3.20
Lock bush	T-1641	\$2.80

Miniscope Spares



Copper tip	T-1662	\$1.15
Stainless barrel	T-1664	\$10.95
Elements	T-1666	\$1.15
Push rod assembly	T-1668	\$8.95
Insulating bush	T-1670	\$1.40
Switch return spring	T-1672	70¢
Contact lug	T-1674	\$1.30
Switch lever	T-1676	\$5.10
Flex Lead	T-1678	\$13.95
Handle (unslotted half	f)T-1680	\$4.30
Handle centre		
piece slotted	T-1682	\$1.85
Handle brass sleeve	T-1684	\$7.35
Ceramic bead	T-1686	35¢
Bead retaining nut	T-1688	40¢

A professional soldering station at a hobbyists price! THE DSE **Soldering Station**

If you're serious about good soldering, there is only one way to do it - with a temperature controlled soldering iron. Until now, temperature controlled irons have been expensive. But Dick Smith Electronics has solved the problem!

The Dick Smith Auto Temp offers you the best quality at an unbelievable low price. Features fully variable temperature control (from around 200 degrees to over 500 degrees Celcius) with a

temperature meter to show you what's happening.

And it's fully approved by the Energy Authority. The station comes complete with lightweight iron holder and cleaning sponge, with a comprehensive instruction manual with full servicing information included - just in case you need it. Cat T-2000

Quality Accessories

Medium Chisel Tip Cat T-2002 Fine Conical Tip Cat T-2006 \$350

Thick Chisel Tip Cat T-2004 \$350

\$350 Replacement Sponge Cat T-2010

AND IT'S **ONLY**



TOOLS TOOLS TOOLS

HPM 240V Soldering Iron with Stand

Look at this for value! A top quality soldering iron complete with its own stand. Just plug it into the 240V AC mains and it will deliver 25W for fast efficient soldering. A well balanced tool for fine work. The workshop wouldn't be the same without one! Cat T-1800



Bargain Soldering Accessories

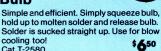
Solder Sucker



A rugged all metal construction solder sucker complete with Teflon tip and a nozzle sweeper as well. Light thumb release mechanism for the removal of solder from the board. Don't pay twice the - a top quality import from Dick Cat T-2560 \$795

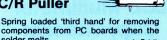
Spare Teflon Tip to suit Cat T-2565

Desoldering



C/R Puller

Cat T-2600

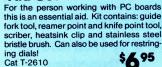


Desoldering Braid

Known to one and all as 'Dick Wick', this is a specially treated copper braid that is used to remove solder from the PC board by capillary action. Fast, clean and very efficient. Cut off the used bit of braid and you are ready to start again. Cat N-1682

1-9...... \$245 10 or more... \$225

Soldering **Aid Set**



Heatsink Clip Set



Spring loaded, plier grip clips for heat sensitive components and leads. Made of aluminium for high thermal conductivity, 2 types, one straight and one angled, both \$250 Cat T-2620

Solder

Top quality corrosion free multicore solder. 1.25mm (18g) 200gram Cat N-1619 \$650 0

0.75mm (22g) 200 grams \$650 Cat N-1623

A liberal amount of solder in a hobby

1.25mm (18g) hobby pack \$4 20 Cat N-1638

0.75mm (22g) hobby pack Cat N-1636 \$4 20



HPM 12V Car Iron

A light, compact tool ideal for those on-the-road or in-the-car jobs. Complete with 4.5 metre cord, crocodile clips and professional soldering instructions. 12V/25W. This iron is easy to handle and will take interchangeable tips in three sizes. Keep one in the boot so a breakdown doesn't spoil your holidays. Cat T-1802



GREAT VALUE ON ADCOLA IRONS

Adcola 'Duotemp' **DR30**



Professional quality precision sold-ering tool! This 240V AC iron gives 21W of heating power. Ideal for the electronics whizz. This iron has TWO temperature modes. For normal work or a special push button boost for fast heating or heavy work. A variety of tips for that specialists job are available. Fantastic value!

Adcola 12 Watt **S30**



Reliable iron for general service production area and ideal for the hobbyist. High impact orange plastic handle and complete with Triclad 3mm long life tip.

Cat T-1820

TIPS TO SUIT: Fine: Cat T-1854 **\$4.50** Medium: Cat T-1850 **\$5.50**

Adcola 16 Watt



For those slightly heavier soldering jobs this Adcola is ideal: service work, assembly, etc. Has heavier element for more power (16 watts) and a larger long life Triclad 5mm tip. Thousands of Adcolas are used in electronics every day. Cat T-1825

TIP TO SUIT Cat T-1856 **\$3**95

Solder Stand

Looking for somewhere to put the iron without burning the bench? How about a soldering stand! The iron sits nicely out of the way and lets you get back to work. Safe and convenient with a tip cleaning sponge it can save heaps of burns and frustration.

Cat T-1804



Multi-purpose Stand

great idea! Leaves both hands free

Holds boards or components firmly in rubber faced vice. Angle of vice may be varied widely in three dimensions for greatest accessibility to board. Convenient soldering iron holder also adjustable. Adjustable spool holder for solder & desoldering wick. Ideal for the hobbyist or professional. Leaves both hands Cat T-5700

Soldering Iron Stand

Want somewhere safe to rest your soldering iron? The perfect place is the Dick Smith stand. It is suitable for the Dick Smith iron (Cat T-1330) or many other medium sized irons.

It has a very stable cast base with

workbench plus a strong coiled spring in which to place the iron. This protects not only the iron but you as Cat T1302

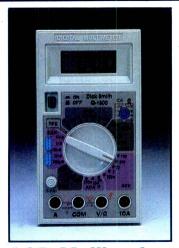


Solder Stand with magnifier!

The helping hand when you need it most: when you have a 'hot stick' in your hand! heavy die-cast base, solder stand, clips for holding PCB, etc – plus a unique magnifying lens for those close assembly jobs. Cat T-5710



TEST EQUIPMENT TEST EQUIP



LCD Multimeter



Push Button

LCD Multimeter

quality digital LCD multimeter at this incredibly low price. Yet no

corners have been cut with this

Features push button range sel-

ection, large 13mm LCD display,

diode check facility and overload

protection. With its 10A DC range,

the Q-1444 represents excellent

Complete with test leads and full

bench stand for easy reading,

Where else but Dick Smith Electronics could you find a

precision instrument.

value for money!

instructions.

Cat Q-1444

LCD Multimeter Cap/Transistor Checker

The very latest - and the very best digital multimeter. And multi is the word. Not just the usual voltage, current and resistance ranges though it's certainly got those - it also checks capacitors (2 ranges, up to a whopping 20uF!) PLUS transistors and diodes. And even more: it's got an audible continuity checker.

Plus other features - such as automatic zero of all ranges, high surge voltage protection, automatic over-range indication, high current measurement (10AC & DC) etc etc - makes this the one digital multimeter you can do just about everything with! Looks like you'll have to

check it out! Cat Q-1500

- 33 ranges
- High accuracy
- 10M input impedance

RANGES: DCV: .2, 2, 20, 200, 1000 ACV: .2, 2, 20, 200, 700 DC: 200uA, 2, 20, 200mA, 10A AC: 2, 20, 200mA, 10A RES: 200, 2K, 20K, 2M, 20M CAP: 2, 20, 200nF, 2, 20uF TRA: hFE 0-1000 DIO: Vf

Cap/Checker

5 F 111 111 11 11

V-Q-8 G-1460 CAPACITANCE DIGITAL MULTIMETER COM

Yes! It not only features the normal ranges found on a digital multimeter, it also has five ranges of capacitance checking, two ranges of conductance AND a diode check position! All this in a very accurate (less than 0.25% on DCV) and a high impedance (10Mohm) instrument that is good enough for the designer's test bench, but has a low enough price for the hobbyist. All this plus overload protection, automatic polarity, 2.5cm LCD digits - and measurement to 10A AC & DC.

Cat Q-1460 **Price** Breakthrough!

- Auto polarity
 High Input Impedance (10M)
 Overload protected
- RANGES:

RANGES:
DCY: 2, 2, 20, 200, 1kV
ACV: 2, 2, 20, 200, 750V
DC: 200uA, 2, 20, 200mA, 10A
AC: 200uA, 2, 20, 200mA, 10A
RES: 200, 2k, 20k, 200k, 2M, 20M
COND: 2uS, 200nS
CAP: 2, 20, 200nF, 2, 20uF
DIODE TEST: 1mA, -2.8V

at just

- 16 ranges
- Push-button convenience
- High input impedance

RANGES:

DCV: 2, 2, 20, 200, 1000 ACV: 200, 1000 DC: 200uA, 2, 20, 200mA, 10A RES: 2k, 20k, 200k, 2000k

Multimeter Carry Case

Your multimeter is a pretty big investment! So when you need to carry it with you, protect it with this high quality case. Room for test leads, notes etc inside.

Made for the Q-1140, but also suitable for other multimeters of larger size. Cat Q-1137

UNIVERSAL TEST LEAD SET

The ultimate test lead set for the professional! Superb quality coiled test leads for ease and convenience. 18 different adaptor probes and plugs Multi-way test leads makes it simple to carry out any test you desire. Screw in connector ends make this suitable for any meter. This is the highest quality set around and at this price they're a must! Cat W-4528

ECONOMY TEST LEAD SET

Ideal for the hobbyist! This deluxe test lead set will have all you should need for the workshop or toolbox. Screw in any of the 14 adaptors and plugs and you will that it's truly versatile. Good quality set at a price that makes it one of the best in Cat W-4526



Multimeter RF **Probe**



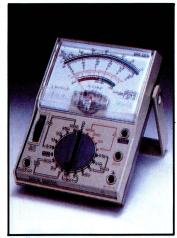
Extend the useful range of your multi-meter way up into the RF range with this neat probe. Frequency response is 150Khz to 30MHz (ref. 500KHz) Comes equipped with 4mm banana plugs for direct multi-meter connection. Ideal for use with most multimeters.

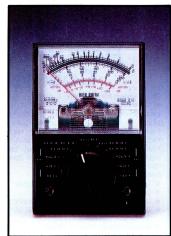
Cat Q-1138

ENT TEST EQUIPMENT TEST EQU









Not just a Multimeter **Transistor** Capacitance Checker too!

Almost a complete test bench in one package - no wonder it's our best selling multimeter! With 100,000 ohm per volt sensitivity and ranges to cover every test set-up, this outstanding meter is all the hobbyist will ever need - and it's just at home on the service bench or in the lab! Measures transistors Ico and Hfe for both NPN and PNP (also good for diode testing) and has an inbuilt transistor oscillator for capacitance measurement. Cat Q-1140

bargain \$

- Fuse PLUS diode protection High Sensitivity — 100k/V
 10A AC & DC scales
- RANGES: DCV: 0.25, 2.5, 10, 50, 250, 1000

0.25, 2.5, 10, 50, 250, 1000 (1000k/V) ACV: 5, 10, 50, 250, 1000 (10k/V) DC: 10mA, 2.5mA, 25mA, 500mA, 10A AC: 10A Decibels: -10 to -62 Resistance: x1, x10, x1k, x10k, Transistors: Hfe 0-1000 Ico 0-50uA

Capacitance: 50pF-3uF, 0.01uF-50uF

Multimeter & Logic Tester

Virtually two instruments in one! The first analogue multimeter in Australia with built-in Logic Tester! Built-in LEDs give 'HIGH' 'LOW' and 'PULSE' states of logic circuits. 18 voltages, current and resistance ranges, with 20K ohm/v sensitivity DC and 8K ohm/V AC. Shielded movement is unaffected by external magnetic fields. The ideal serviceman's multimeter.

Cat Q-1026

Super \$ low price

Built-in Logic Tester

IC Test Clip

20 Ranges
 Diode & Fuse Protection

RANGES:

DCV: .3, 3, 12, 60, 300, 1200 ACV: 6, 30, 120, 300, 1200 DC: .06, 3, 30, 300mA RES: x1, x10, x1K, x10K

Multimeter with audible continuity tester

A compact, reliable multimeter with an added bonus: a built-in buzzer for continuity testing! Also has a battery checker PLUS 10A DC range - not normally found on low-priced multimeters! On top of this, you get a high sensitivity (20,000 ohms per volt) meter mirrored scale and large banana plugs for sure contact.

Cat Q-1022

- Diode and fuse protection
- 19 ranges plus dB Built-in battery checker plus continuity checker

RANGES:

DCV: 2.5, 10, 50, 250, 1000 ACV: 10, 50, 250, 1000 DC (mA): 5, 50, 500 & 10A RES: x1, x10, x1k Batt: 1.5V, 9V Continuity

Mini **Multimeter**

A great little multimeter for anyone starting out . . . or for anyone who is likely to knock their multimeter around a lot. For less than \$15 you get an 11 range, 2000 ohm/volt pocket sized meter that's ideal for most of the general test work we all do. It's rugged and reliable, measures just 92 x 60 x 30mm, and weighs in at only 158g. Throw one in the tool box just in case!

Cat Q-1010

value! \$

- 2000 ohms per volt
- 11 ranges
- Very simple to operate

RANGES:

AC & DC Volts: 10, 50, 250 & 1000 DC Current: 0.5, 100mA Resistance: x 10, x 1k

Multimeter Cable Pack



Special 512 strand (yes 512!) very flexible wire that is ideal for test leads or for connection to something that is moving. Very low resistence and only 3mm in diameter. Pack contains 2 metres each of red and black (4 metres total). Cat. W-4016 \$450

Leads

Great for working with IC's (or any other components!) With insulated IC test clips one end, 4mm banana plugs on the other. Leaves hands free while measuring. Cat W-4509

Coiled Test Leads Self Retractina

You know the problem of meter leads cluttering up the bench? It won't happen with these leads: They're coiled and return to their coiled shape after being extended. A red & black pair with 1.5mm meter plugs. Cat W-4520



1.5mm Plug Test **Lead Sets**

As supplied with most multimeters (and which are always getting lost!) 90cm long red and black lead with 1.5mm plugs and long insulated probes. Cat W-4504

4mm Plug Tes Lead (Sets

As above but with 4mm banana plugs to suit large diameter multimeter sockets. Cat W-4508

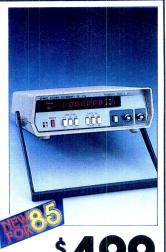
PMENT TEST EQUIPMENT 1

1GHz Frequency Counter

with an enormous range of up to 1GHzIA professional device at an affordable price. The robust, functional design make this unit ideal for the lab, technical design make this unit ideal for the lab, technical design make the professional design make nician, workshop or professional hobbyist. The large bright display and logical layout allow the job to be done quickly and efficiently. Features include:

- ★ Large, easy to read 8 digit display
- ★ Streamlined, functional design
 ★ 3 gating times 0.1, 1, &10 seconds
 ★ 3 frequency ranges 10MHz, 60MHz
- ★ Sensitivity at 1GHz 20mV ★ Inbuilt 10:1 attenuator
- ★ Inputs 10Hz to 60Hz at 1M ohm 50mHz to 1GHz at 50 ohms

Cat Q-1315



Battery Lamp and Fuse Tester

Make sure you're not throwing away a fortune! Checks a huge range of 1.5V-9V cells acutally under load: the only way to check them! Even checks NiCads, calculator, watch and photo graphic batteries. Also checks miniature lamps and cartridge fuses for continuity. Cat Q-1525

Resistance Substitution Wheel

Convenient size with large, easy to read value selection that enables you to select values from 5 ohms to 1M ohm in 36 steps by using most common divisions. Complete with leads and insulated crocodile clips. crocodile clips.

Cat Q-1410



Mini Alligator Clips Fully insulated with plastic shroud, easy to solder to; two colours available. easy to solder to, two colods: PRED Cat W-4550
BLACK Cat W-4552

Large Alligator Clips

With red or black insulated grips. RED Cat W-4554
BLACK Cat W-4556
25 35° each 10 up 30¢

IC Test Clips Similar to the popular

E-Z hooks, but cheaper Ideal for working with small components, easy to solder to.

RED Cat W-4580
BLACK Cat W-4582

16 Pin IC Test Clip

Makes connection of DIL IC eas without the danger of shorting out pins. Use on 8, 14 or 16 pin IC's. Often used as part of a test jig for production testing or service work. Spring loaded. Cat W-4600 \$495

Hook Probes

With a 'syringe' action and a long shaft: makes connection in tight corners very easy. Knurled grip screw for instant lead attachment, positive action and sure grip for all your test work RED Cat W-4589 BLACK Cat W-4590

(10 up \$2.50 each)

Small Jumper Lead Set

TEN PIECE! Makes breadboarding easy! 10 380mm leads, with alligator clips each end. 5 different colours for easy Cat W-4570

TESTCLIPS & JUMPERS

IC Jumper Lead Set

A pair of matching red & black leads, one metre long. with matching IC test clip at each end. Cat W-4572 Great Value! \$425



4 x 750mm leads fitted with large insulated alligator clips at each end to make testing or by-passing easy. Four different colours for instant identi-fication. Cat W-4571

\$395

Probe

A superb time-saving tool for the hobbyist, technician, engineer etc. This outstanding logic probe hooks onto the circuit under test for it's power (5V DC), and you can tell at a glance what the logic level is by which of the three LED's is glowing. It is easily held in one hand — so your other hand is left free! Cat Q-1272

Features:

- Adjustable threshold for DTL/TTL or CMOS circuits
- Two modes of operation: pulse (with time stretching so you don't miss quick pulses!) and mem (holds display until cancelled).
- Low circuit loading (approx 30uA input)
- Tested to Tested to 12.6MHz \$ **24.75**

Signal

One of the handiest devices to have in your tool box. Check out both audio and RF circuits (harmonics extend to many MHz) simply and easily. Often the quickest method of fault finding (and one of the

cheapest!) Self contained, and earth clip.

Cat Q-1270

Battery Operated



Monitor 4 Geiger Counter

A miniature geiger counter useful for research, education and personal pro-tection in laboratories, hospitals, etc. Sensitive to a broad spectrum range of ionizing radiation including alpha, beta, gamma and x-rays. Switching range - 0.5mR/hr to 50mR/hr. Extra long battery life. Complete with operating manual. This is an accurate scientific instrument at an affordable price. Cat Q1000



Power/SWR Meters



Oskerblock SWR 200

Incredibly popular with the keen amateur Uses Directional Coupler and Through Line principles for minimum loss, covers 3 to 200MHz (quaranteed!) and suits both 50 & 75 ohm lines. Each instrument is individually calibrated and comes with calibration chart. PL259 Connections.

Specifications:

SWR METER POWER METER BAND (MAX. PWR) (MAX. SCALE) 200/2kW 100W 40 50W 200/2kW 20/200/2kW 15W 20 15/10 20/200/2kW 6/2 1 W 2/20/200W

Size: 220 x 76 x 110 (mm)

super \$43



Oskerblock UHF

SWR/Power Meter Now there's a brand new Oskerblock - just for UHF! Checked 420-490MHz so it's ideal for H UHF CB and Amateur bands. Micro-match strip line type, with 3 power ranges up to 125W and just 0.25dB nsertion loss. 50 ohms impedance; PL 259 type

Cat Q-1342



Built in Field Strength

Not just the usual power/SWR measure-ment: it also has built-in field strength facilities for accurate and precise antenna radiation & other RF energy measurement. Fitted with standard SO-239 sockets, can be left permanently in antenna line to ware a problems.

to warn of problems.

Power: 10W full scale Frequency: To 30MHz SWR: 1:1 to 3:1 and above Impedance: 50 ohms

Cat Q-1350

A great buy at

EQUIPMENT TEST EQUIPMENT

Wideband RF Signal Generator

Low cost RF signal generator that's ideal for the hobbyist/amateur as well as the serviceman. Great for checking and aligning IF circuits and tuners in AM, FM, and TV sets plus a huge range of general purpose service, troubleshooting and development work. SPECIFICATIONS:

Frequency range: 100kHz to 150MHz in six

overlapping ranges.

Accuracy: +/- 1.5%

RF output: 100mV rms approx (up to 35MHz)

Modulation: 1kHz internal, 50Hz - 20kHz external

Audio output: 1kHz at 1V rms (fixed) Crystal Oscillator: 1-15MHz external crystal, FT243

Supply voltage: 240V Cat Q-1312

'Piaeon Pair'

AF Signal generator

Square/Sine wave output audio signal generator, essential for work on huge range of circuits. With wide 20Hz - 200kHz output and high accuracy, it is the perfect partner for the above RF generator.

SPECIFICATIONS:

Frequency range: 20Hz-200kHz

Accuracy: +/- 3% - 2Hz Output impedance: 600 ohms unbalanced

Output control: High/Low unbal (-200dB) and fine

Sine wave output: 20Hz-20kHz, 5V rms max at 1% or

less distortion Square wave o/p: 20Hz, 10V p-p max, 0.5us rise time Synch: +/- 3% of oscillator frequency per V rms

Cat Q-1310

amazing value!







Hand-held RC Oscillator

A really worthwhile addition to your test gear; a hand-held oscillator Areany worthwille adultion to your lest gear. a faithful destinated that's small enough to take anywhere. About the same size as a digital multimeter, it gives you 23 ranges of sine & square waves (switchable) between 20Hz and 1.5kHz, plus a x100 range: 46 settings in all. Continuously variable amplitude and a -20dB attenuator built in gives total control. And you can sync the signal if you wish. Output is standard

Complete with clip test leads.

Cat Q-1220



20MHz DUAL TRACE LAB CRO



All the features asked for in a professional model But the price is anything but professional!

With response of DC-20MHz (3dB) and a usable response to well over 50MHz, it's perfect for developmental work as well as general service. And with its unique 'component test' terminals, you can check a huge range of components, both in circuit and out.

Compare the new DSE 20MHz Dual Trace CRO to others on the market. And compare the price.

There's no comparison!

- 5mV/div to 5V/div vertical (10 steps)
 0.1us/div to 0.2s/div horizontal (uncal (0.5s)
- Modes Ch1, Ch2, Ch1&2 alternate, chopped, added, etc.
- Trigger on all modes (auto, normal or external)
- Sweep ranges 0.1us to 10ms (6 steps) 140mm P31 rectangular screen.

Cat Q-1250



DSE 6.5MHz **HOBBYIST'S CRO**

An oscilloscope every hobbyist can afford!

Every hobbyist knows how valuable a good oscilloscope is: probably the most useful piece of test gear you can own.

At last, we've been able to obtain a new 6.5MHz CRO, at a bargain price.

Here's what it offers:

- Retrace blanking for a much clearer display
- 10mV per division vertical sensitivity
 500mV per division horizontal sensitivity
- 10Hz to 100kHz timebase (in 4 ranges)
- Internal or external sync
- And a usable response to beyond 6.5MHz

Ideal for the shack, the work bench, in service work, in the classroom and also in assembly applications. Solid state electronics (apart from the tube!) means fast warm-up and extremely

Cat Q-1280

\$299

100Mhz x1/x10 **CRO PROBE**

This incredibly versatile probe set will suit virtually any CRO and give you all the features of a probe set you would pay \$\$\$ more for!

Here's what you get:

Probe with inbuilt x1/x10 switch, 1.5 m of cable complete with coax type CRO connector and wandering earth lead with alligator clip; PLUS these accessories

- IC adaptor tip-insulates probe from adjacent IC pins. Spring clip – hooks on to keep your hands free
- Insulating shroud enables you to probe deeply into equipment without fear of shorting.
- BNC adaptor allows probe to plug into BNC sockets. Plastic wallet - to house all the bits for safe keeping.



Working voltage: 600V Pk (or 600V DC)

Working Voltage: BOUV PK (or 600V DC)

Bandwidth: x1 position: DC-100MHz

x10 position: DC-100MHz

Input resizence: x1 1Mohm, x10 10Mohm
Input Capacitance: x1 40PF plus CRO input C

x10 11.5pF if CRO input 30pF

Risetime: x10 position 3.5ns

Compensation range: x10 position 10-60pF 'REF' position: probe grounded via 9M resistor

COMPONENT PACKS THE SMART WAY TO BUYYOUR COMPONENTS!



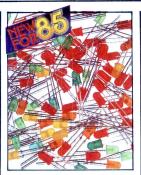
E-24 Metal Film 1% Resistor Pack

New! 300 pieces

Now for those who need really precision resistors, we've added this superb pack of low noise 1% metal films to our range: in the full E-24 series. Consists of 300 pieces covering 60 values between 11 ohms and 910 kohms; computer chosen for maximum usefulness. Cat R-7020

WORTH OVER \$21!

\$ 1 795

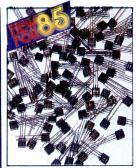


Premium LED Pack

New: 100 premium LEDs

Not the usual mix, these: they're top quality- matched for brightness & colour. Standard 5mm size: at this price you can afford to use premium LEDs on all your projects! You get: sixty red, twenty green, ten yellow and ten orange. That's a hundred premium LEDs for a song! Cat Z-3015

OVER *18 WORTH!! \$ 1095

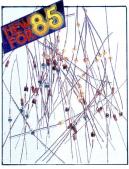


Signal Transistor Pack

New! 100 pieces

A pack of the most-used transistors the hobbyist, technician or design lab can have. Comprises twenty each of DS547, DS548, DS549 NPN types (equiv. BC107, 8 & 9), fifteen DS557 & DS558 (equiv BC557, 8) and ten BC159 PNP types. Incredibly handy to have around: just in case! And look at the saving . . . Cat Z-3000

OVER \$45 WORTH!! \$ 1095



Signal Diode Pack

New! 100 pieces

Another beauty! A selection of the types of diodes we all use for projects - from crystal sets to computers! Contains five OA90, fifteen OA91/DSOA91, five OA95, five OA47 germanium diodes, and a huge seventy (yes, seventy!) 1N914 silicon diodes. Keep a pack in the junk box! Cat Z-3005

WORTH OVER V



Power Diode Pack

New! 57 diodes & SCR's

Just the type of pack you've been waiting for: over fifty of the most used power diodes and SCR's (not useless, rubbish types!). You get: 10 each 1N4002, 1N4004, 1N4007 1A diodes, 10 each 1N5404 & 1N5408 3A diodes, two WO4 1.5A 400V bridges, three C106Y1 and two C122E general purpose SCR's. Cat Z-3010.

WORTH OVER \$19 \$ 1095

NEW EXTENDED COMPONENT PACK RANGE!

\$ave \$\$\$\$ when you buy your components in bulk! Yes, up to 50% and more off normal prices - and that's a saving worth making. We've expanded our range of bargain component packs: because you asked for them. Four new semiconductor packs and a new resistor pack added! Now you can buy most of the common components you need in bulk packs: and save a fortune!





Resistor Pack

300 computer selected 1/4W types

Ideal for the professional and the hobbyist, 60 values specially chosen by the computer. Quality 5% types - huge savings on normal prices: less than 2¢ each! Cat R-7010

WORTH OVER \$15

\$695



Metal Film Resistor Pack

300 precision 1% ¼W E-12 metal film resistors

Our 1% metal film resistors are even better value when bought by the pack! Now there's no excuse not to use metal films in all your projects – especially at this price!

WORTH OVER \$18

\$**13**95



Greencap Pack

60 Greencaps

No wierd, rubbish values in this pack. Every greencap is as used in a number of circuits. 100 volt rating, too – and the values are selected from .001uF to 0.22uF (60 capacitors in all). Cat R-7040

WORTH OVER \$14

\$ 995



Electrolytic Pack

55 Electrolytics

55 top quality single ended (pcb mounting) electrolytics. You're sure to find one here you need. Range from 2.2uF to 470uF, voltages from 10 to 25. Cat R-7030

WORTH OVER \$19

\$695



Ceramic Pack

Over 60 Ceramics

Quality ceramic capacitors in a specially selected pack. Voltages from 50V – some as high as 630VW. Save a fortune over one-off prices. Cat R-7050

WORTH OVER \$8

\$495

HARDWARE PACKS

NYLON NUTS AND BOLTS

Precision moulded from '66' white nylon. Fully insulated, will not shake loose, can resist high temperatures and they are corrosion free. These items are hard to get but we have them and they are ideal for transistor and heatsink use. Tough

Description	Qty.	Cat. No.	per pack
12mm x 4BA cheese head	10	H-1012	95¢
25mm x 4BA cheese head	10	H-1022	95¢
4BA hex nut	12	H-1302	\$1.95
4BA washer	12	H-1452	95¢
12mm x 6BA cheese head	10	H-1032	95¢
25mm x 6BA cheese head	10	H-1042	95¢
6BA hex nut	12	H-1312	\$1.95
6BA washer	12	H-1462	95¢



1/4" Whitworth round head Zinc plated - just the kind of item that should be in your 'ready' box for

9mm long	25	H-1052	65¢
12mm long	25	H-1062	65¢
25mm long	20	H-1072	65¢
3mm hex nut	30	H-1322	75¢
3mm shake proof washer	50	H-1472	65¢
3mm metal washer	50	H-1482	65¢
4		A	

BA TYPE NUTS AND BOLTS

Both brass and steel types in cheesehead.

12mm x 4BA bolt	25	H-1082	/5¢
4BA hex nuts (brass)	20	H-1332	90¢
4BA flat washer (steel)	50	H-1488	80¢
4BA shake proof washer	50	H-1486	80¢
12mm x 6BA bolts	25	H-1092	80¢
6BA hex nuts (brass)	25	H-1342	90¢
6BA pack containing 12 of	each	- 12mm	bolts

brass nuts and shakenroof washers A total of 36

units.	,
Cat. H-1684 75	¢
8BA pack containing 12 of each - 12mm brass bolts, nuts and washers. A total of 36 units.	3
Cat. H-1682950	,

SWITCH SCREW

Cross pan-head screws to suit most switches with threaded mounting holes. Two sizes to choose from, each pack has

3 x 10mm ISO Cat H-1672 70¢ 2 x 5mm JIS Cat H-1674 70¢

SELF-TAPPING Summing. **SCREWS**

Ideal for projects or as replacements for lost screws. These units are Cadmium plated steel.

No. 4 x 12mm: Size 40	25	H-1612	95¢
No. 4 x 6mm: Size 40	25	H-1611	95¢
No. 8 x 12mm: Size 30	25	H-1632	95¢

INSULATED TRANSISTOR MOUNTING KITS

TO-3 TYPE

O ADIM" A pack of four TO-3 transistor mounting kits (mica washer and 2 bushes). Specially selected to give maximum heat transfer. (0



Now there's no problem in mounting TO-220 type semis. Pack of 5 insulating washers and bushes. Cat H-1916



BRASS SPACERS

High quality nickel plated brass spacers. May be stacked for extra length if required. Price

	Qty.		per
Description	pack	Cat No	pack
6mm		H-1831	
9mm	10	H-1832	\$1.35
12mm	8	H-1833	\$1.35
25mm	6	H-1834	\$1.35

The above units are 4BA (%") clearance hole

The following units are hexagonal 4BA tapped

6mm OD. 9mm 12mm	6	H-1842 H-1843		
25mm	4	H-1847	\$1.35	

INSULATED **SPACERS**

The ideal spacer for insulating the chassis from your PC board. They come complete with screws. 5 H-1862 \$1.95 4 H-1872 \$1.95 15mm



CIRCUIT BOARD SUPPORTS

Designed to hold printed circuit boards in position with sufficient clearance above the chassis. They snap into place and can be easily installed or removed by hand. They require a 4mm hole in the PC board and 4.75mm clearance hole in the

H-1981 80¢

RIGHT ANGLE **BRACKETS**

These brackets are made from mild steel with Cadmium plating. They are ideal for projects where right angle mountings have to be made. They have a 3mm clearance.



LED MOUNTING BEZELS pack of 15 0 0

When making up projects that have LED power indication or otherwise why not 'dress' your LEDs for that added professional touch. They work out at less than 7¢ each!

Cat. H-1910...... pack of 15......95¢

POT NUT & WASHER PACK

If you're a frustrated project builder searching through thick shagpile carpet for dropped nuts or washers – search no more! Now we can supply a pack of 20 nuts & washers at an incredible price!!! You get imperial size (3/8 hole) plus the new metric sizes (9mm hole). Now there is no excuse not to finish your Cat. H-1360.

3AG FUSE CLIPS

These fuse clips are ideal for mounting on PC boards providing flexibility and extremely good value.

Cat H-1700..... Pkt. 8 95 ¢

TO-3 TRANSISTOR INSULATING CAP

A high quality plastic cap that is a press fit over T0-3 transistors. Avoid shorts to chassis (which could blow the transistor) or exposed high collector voltages (which could blow you!) Fit a cap to those T0-3's

Cat H-1918



CABLE JOINERS

How many hours have you spent stripping, soldering and insulating wire? Forget it in the future! These brilliant connectors join wires instantly. All you have to do is lay the two wires to be joined inside the connector and squeeze the connector together with pliers. Can be used in car wiring, trailer wiring, etc. Hundreds of uses. 2 per pack.



CORD CLAMP GROMMETS

This is a self-locking grommet that maintains a secure grip on the cable without the use of separate clamps. Both - a grommet and clamp in one! Fits 3 core miniflex or equivalent cable size.

Hole size 12 to 16mm 4 H-1724 95¢



RUBBER FEET SELF-ADHESIVE

Just think - no holes to bore in your chassis, you just stick these handsome black feet on! They have hundreds of uses including being used on store bought equipment.



CABLE CLAMPS

These are heavy duty Nylon cable clamps and are a must for terminating power cords and all cables, especially in projects.





When making any project that little extra professionalism will make the job look better. These units will handle up to 20mm diameter and down to 2 single wires.

20 in pack Cat. H-1970

GROMMETS

Heavy duty grommets made of black rubber. Essential when cable passes through a metal chassis as they will prevent frayed cables and live chassis.



Hole Size	Bore	No in pack	Cat No	Price
8mm	5.5	10	H-1712	95¢
16mm	6	10	H-1716	95¢
12mm	9	8	H-1719	95¢

RUBBER FEET -SCREW-ON

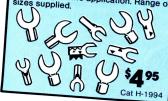


The conventional rubber feet that have a 3mm hole for screw mounting. Made of black rubber, they can also be cemented on to your project.

Cat. H-1736 8 in a pack 95¢

ASSORTED SPADE LUG PACK

Approximately 100 plated finish spade lugs which are ideal for a huge variety of hobbyist uses: speaker connections, nondylst uses: speaker connections, earth terminals, automotive wiring, etc. They can be either crimped or soldered depending on the application. Range of



ASSORTED CRIMP LUG PACK 30 crimp lugs of various types, all with

su crimp lugs or various types, all with insulation already attached. Can be crimped with either crimping plier or a pair of pliers. 30 lugs and cable joiners in beady pack.



THE ULTIMATE CONNECTOR BOX

Hundreds of pieces! Assorted lugs, connectors, fuses, grommets, clips & ties in a sturdy plastic carry case. Over twenty different compartments! Ideal for the handyman, serviceman, auto electrician etc. Perfect for all those little pieces you can never find.



ASSORTED METRIC SCREW PACK

Over 200 pieces of the most popular small sizes: M2.5, 3 & 4 nuts and screws-cross, round and countersunk head. Plated finish, ideal to have on hand in the



RESISTORS & POTS

Single Rotary Pots			your 'easy fin y follow the'va			er side until y	ou find the pa	articular
\$1.05 ea (10 up 95¢) LINEAR 500 R-6802 50k R-6809	LOG 1k R-6817 100k R-6824	(e.g. m	you require, an netal film. 1W o	arbon film, e	etc.).That's the	catalogue nu	mber of your 5W	
1k R-6803 100k R-6810 10k R-6806 1M R-6813 20k R-6807 2M R-6814	5k R-6819 500k R-6826 20k R-6821 2M R-6829 50k R-6823	VALUE IN OHMS	7¢ each	5¢ each	6¢ each	9¢ each 100 or more 7¢ each	Wire Wound 55¢ each 10 or more 40¢ each	IN OHMS
Single Rotary Log	LOG 10k R-6879 500k R-6886	0.1 0.47					R-1600 R-1601	0.1 0.47
\$2.00 ea (10 up \$1.80)	500k R-6886 1M R-6888	1.0 1.2 1.5 1.8 2.2 2.7		R-1002 R-1004 R-1006 R-1008 R-1010	R-1202 R-1204 R-1206 R-1208 R-1210	R-1402 R-1404 R-1406 R-1408 R-1410 R-1412	R-1602 R-1604 R-1606 R-1610	1.0 1.2 1.5 1.8 2.2 2.7
\$2.10 ea (10 up \$1.90) LINEAR 10k R-6834 20k R-6836 100k R-6840	LOG 10k R-6849 50k R-6853	3.3 3.9 4.7 5.6 6.8 8.2		R-1012 R-1014 R-1016 R-1018 R-1020 R-1022	R-1212 R-1214 R-1216 R-1218 R-1220 R-1222	R-1414 R-1416 R-1418 R-1420 R-1422	R-1614 R-1618 R-1620 R-1622	3.3 3.9 4.7 5.6 6.8
Wire Wound Pots (Rated at 3 watts) \$3.25 ea (10 up \$2.95) 5 R-6901 100 R-6903 10 R-6903 200 R-6911 25 R-6905 500 R-6913 50 R-6907	LOG 1k R-6915 5k R-6921 2k R-6917 7.5k R-6923 3k R-6919 10k R-6925	10 12 15 18 22 27	R-0526 R-0528 R-0530 R-0532 R-0534 R-0536	R-1024 R-1026 R-1028 R-1030 R-1032 R-1034 R-1036	R-1224 R-1226 R-1228 R-1230 R-1232 R-1234 R-1236	R-1424 R-1426 R-1428 R-1430 R-1432 R-1434 R-1436	R-1624 R-1626 R-1628 R-1630 R-1632 R-1634 R-1636	8.2 10 12 15 18 22 27
Mini Vertical Trimpots 40¢ ea (10 up 35¢) 100 R-1929 2k R-1937 200 R-1931 5k R-1939	LOG 50k R-1945 1M R-1953 100k R-1947 2M2 R-1954	33 39 47 56 68 82	R-0538 R-0540 R-0542 R-0544 R-0546 R-0548	R-1038 R-1040 R-1042 R-1044 R-1046 R-1048	R-1238 R-1240 R-1242 R-1244 R-1246 R-1248	R-1438 R-1440 R-1442 R-1444 R-1446 R-1448	R-1638 R-1640 R-1642 R-1644 R-1646 R-1648	33 39 47 56 68 82
Line Vertical Trimpots 1k R-1935 20k R-1943 Line Vertical Trimpots 100 R-1956 2k R-1960 200 R-1957 5k R-1961	500k R-1951 LOG 50k R-1964 1M R-1968 100k R-1965 2M2 R-1969	100 120 150 180 220 270	R-0550 R-0552 R-0554 R-0556 R-0558 R-0560	R-1050 R-1052 R-1054 R-1056 R-1058 R-1060	R-1250 R-1252 R-1254 R-1256 R-1258 R-1260	R-1450 R-1452 R-1454 R-1456 R-1458 R-1460	R-1650 R-1652 R-1654 R-1656 R-1658 R-1660	100 120 150 180 220 270
500 R-1958 10k R-1962 1k R-1959 20k R-1963 Horizontal Trimpots 45¢ eq (10 up 40¢) LINEAR 100 R-1760 2k R-1767	200k R-1966 500k R-1967 LOG 50k R-1775 1M R-1783	330 390 470 560 680 820	R-0562 R-0564 R-0566 R-0568 R-0570 R-0572	R-1062 R-1064 R-1066 R-1068 R-1070 R-1072	R-1262 R-1264 R-1266 R-1268 R-1270 R-1272	R-1462 R-1464 R-1466 R-1468 R-1470 R-1472	R-1662 R-1664 R-1666 R-1668 R-1670 R-1672	330 390 470 560 680 820
200 R-1761 5k R-1769 500 R-1763 10k R-1771 1k R-1765 20k R-1773 10 Turn Trimpots \$2.60 ea (10 up \$2.40)	100k R-1777 2M2 R-1784 200k R-1779 500k R-1781	1k 1.2k 1.5k 1.8k 2.2k 2.7k	R-0574 R-0576 R-0578 R-0580 R-0582 R-0584	R-1074 R-1076 R-1078 R-1080 R-1082 R-1084	R-1274 R-1276 R-1278 R-1280 R-1282 R-1284	R-1474 R-1476 R-1478 R-1480 R-1482 R-1484	R-1674 R-1676 R-1678 R-1680 R-1682 R-1684	1k 1.2k 1.5k 1.8k 2.2k 2.7k
A multi-turn pot as used in a huge variety of test gear, precision equipment, etc. Very well made. 10 turns from end to end.	1k R-1900 10k R-1901 20k R-1902 50k R-1903	3.3k 3.9k 4.7k 5.6k 6.8k 8.2k	R-0586 R-0588 R-0590 R-0592 R-0594 R-0596	R-1086 R-1088 R-1090 R-1092 R-1094 R-1096	R-1286 R-1288 R-1290 R-1292 R-1294 R-1296	R-1486 R-1488 R-1490 R-1492 R-1494 R-1496	R-1686 R-1688 R-1689	3.3k 3.9k 4.7k 5.6k 6.8k 8.2k
Replacement pots for transistor radios, Miniature screw mounted 70¢ ea (10 up 65¢)	Miniature Rotary \$1.05 ea (10 up 90¢)	10k 12k 15k 18k 22k 27k	R-0598 R-0600 R-0602 R-0604 R-0606 R-0608	R-1098 R-1100 R-1102 R-1104 R-1106 R-1108	R-1298 R-1300 R-1302 R-1304 R-1306 R-1308	R-1498 R-1500 R-1502 R-1504 R-1506 R-1508	00 of the ice. Refer	10k 12k 15k 18k 22k 27k
replacement type in small radios, etc. Thumbwheel adjust type, screw mounted. Complete with on/off switch, resistance 5k	As used in larger radios, cassettes, etc. With 25mm long fluted shaft and on/off switch. Grab some for the junk box! Also ideal for general use, res. 5K.	33k 39k 47k 56k 68k 82k	R-0612 R-0614 R-0616 R-0618 R-0620 R-0622	R-1112 R-1114 R-1116 R-1118 R-1120 R-1122	R-1312 R-1314 R-1316 R-1318 R-1320 R-1322	R-1512 R-1514 R-1516 R-1518 R-1520 R-1522	sistors is for 100 ain a 100-up price. ngs!	33k 39k 47k 56k 68k 82k
Joystick Pot \$4.95 ea (10 up \$4.40) Assembly complete	50k Slider Pot \$1.05 ea (10 up 90¢)	100k 120k 150k 180k 220k 270k	R-0624 R-0626 R-0628 R-0630 R-0632 R-0634	R-1124 R-1126 R-1128 R-1130 R-1132 R-1134	R-1324 R-1326 R-1328 R-1330 R-1332 R-1334	R-1524 R-1526 R-1528 R-1530 R-1532 R-1534	n for all the resistors e mixed to obtain a 10 rs at huge savings!	100k 120k 150k 180k 220k 270k
with 2 x 100K linear pots with paddle movement allowed in all directions. Great for radio control, TV & computer games, music	As used in Playmaster Graphic Equalizer. Quality 50k linear pot, 73mm length, 45m overall travel. Special	330k 390k 470k 560k 680k 820k	R-0636 R-0638 R-0640 R-0642 R-0644 R-0646	R-1136 R-1138 R-1140 R-1142 R-1144 R-1146	R-1336 R-1338 R-1340 R-1342 R-1344 R-1346	R-1536 R-1538 R-1540 R-1542 R-1544 R-1546	100-up price shown Resistors can NOT be mixed value resistors	330k 390k 470k 560k 680k 820k
synthesisers, X/Y Cat R-1976 analogue displays, etc. Cat R-1980 Varistors Two types to choose from:	knobs are available to suit (see knobs page).	1 M 1.2 M 1.5 M 1.8 M 2.2 M 2.7 M	R-0648	R-1148 R-1150 R-1152 R-1154 R-1156 R-1158	R-1348 R-1350 R-1352 R-1354 R-1356 R-1358	R-1548 R-1550 R-1552 R-1554 R-1556 R-1558	E: The 100-u value. Resistu oks for mixed	1 M 1.2 M 1.5 M 1.8 M 2.2 M 2.7 M
Used in circuit where transient voltage spikes could cause damage. They absorb the spike with a fast response time (less than 35 nanoseconds) with no follow-on current once the spike is gone.	V250LA20A (For 240V circuits) Cat R-1802 (50) \$2.85 (10 up \$2.60)	3.3M 3.9M 4.7M 5.6M 6.8M 8.2M		R-1160 R-1162 R-1164 R-1166 R-1168 R-1170	R-1360 R-1362 R-1364 R-1366 R-1368 R-1370	R-1560 R-1562 R-1564 R-1566 R-1568 R-1570	PLEASE NOTE: The same type and value. R to our bulk packs for m	3.3M 3.9M 4.7M 5.6M 6.8M 8.2M
		10M		R-1172	R-1372	R-1572		10 M

CAPACITORS

PREFERRED VALUES:

Most capacitors are supplied in 'preferred values'; however some - particularly electrolytics - are not. (For example, 640 uF where you might expect 560 or 680 uF). If you have a circuit specifying a particular value electrolytic and the one you're supplied with is not the exact value, it is normally quite safe to use it. Electrolytics usually have a very wide tolerance anyway, so if you get stuck you'll probably find a value in either direction will work just as

POLYESTER

Often called 'greencaps' because they're very often green in colour. Polyester capacitors are the most widely used of all types, in a huge variety of circuit applica-tions. These polyester types are all rated at 100V or more. See data section for marking codes used.



marking codes used.	"
VALUE CAT PRICE PRICE IN NO. 1-9 10 up uF	VALUE CAT PRICE PRICE IN NO. 1-9 10 up uF
0.001 R-2010 25¢ 20¢ 0.0012 R-2012 25¢ 20¢ 0.0015 R-2015 25¢ 20¢	0.039 R-2075 25¢ 20¢ 0.047 R-2080 25¢ 20¢
0.0018 R-2018 25¢ 20¢ 0.0022 R-2020 25¢ 20¢	0.056 R-2085 25¢ 20¢ 0.068 R-2090 25¢ 20¢
0.0027 R-2027 25¢ 20¢ 0.0033 R-2025 25¢ 20¢ 0.0039 R-2030 25¢ 20¢	0.082 R-2095 25¢ 20¢ 0.1 R-2100 28¢ 23¢ 0.12 R-2102 28¢ 23¢
0.0047 R-2035 25¢ 20¢ 0.0056 R-2040 25¢ 20¢	0.15 R-2105 28¢ 23¢ 0.18 R-2107 28¢ 23¢
0.0068 R-2045 25¢ 20¢ 0.0082 R-2050 25¢ 20¢ 0.01 R-2055 25¢ 20¢	0.22 R-2110 28¢ 23¢ 0.27 R-2115 35¢ 30¢ 0.33 R-2120 35¢ 30¢
0.012 R-2057 25¢ 20¢	0.39 R-2125 45¢ 40¢ 0.47 R-2130 55¢ 45¢
0.015 R-2060 25¢ 20¢ 0.018 R-2062 25¢ 20¢ 0.022 R-2065 25¢ 20¢ 0.027 R-2067 25¢ 20¢	1.0 R-2135 \$1.25 \$1.15 2.0 R-2140 \$1.50 \$1.25 3.3 R-2145 \$2.50 \$1.20
0.033 R-2070 25¢ 20¢	

HIGH VOLTAGE POLYESTER

Similar to above range, but offering a very high voltage rating: 630 volts! Ideal replacements for most capacitors used in velocities. valve circuits.



VAL. IN uF	CAT NO	\$ 1 - 9	\$ 10 up	VAL. IN uF	CAT NO	\$ 1 · 9	y \$ 10 up	
0.01	R-2160	30¢	25¢	0.1	R-2170 R-2172	60¢	55¢	
0.022	R-2162	35¢	30¢	0.22	R-2172	95¢	90¢	
	R-2164	45¢	40¢	0.33 0.47	R-2174	\$1.05	\$1.00	
0.047	R-2166	45¢	40¢	0.47	R-2176	\$1.15	\$1.05	

POLYSTYRENE

With a low temperature coefficient and very high voltage rating, polyester capa-citors are ideal for use where stability and voltage rating is important.



VAL. CAT IN uf NO.	VAL. CAT IN uf NO	VAL. CAT IN uF NO.
33pF R-2807 39pF R-2809 47pF R-2811 56pF R-2813 68pF R-2815 220pF R-2827 270pF R-2829	330pF R-2831 390pF R-2833 470pF R-2835 82pF R-2817 100pF R-2819 120pF R-2821	150pF R-2823 180pF R-2825 560pF R-2837 680pF R-2839 820pF R-2841 1000pF R-2843
All polystyrene on	10 up 40¢	

HIGH VOLTAGE POLYCARBONATE

Specifically intended for mains and other suppression applications, these capacitors are rated at 250 volts AC continuous.



VALUE	VOLTAGE	CAT NO	\$ 1 · 9	\$ 10 up
0.001uF	250V AC	R-2740	80¢	75¢
0.01uF 0.1uF	250V AC 250V AC	R-2730 R-2720	70¢ \$1.30	65¢ \$1.20

VARIABLE TUNING GANG

60pF to 160pF miniature solid dialectric tuning capacitor suitable for replacement in many transistor radios. Ideal for new projects



TAG TANTALUMS

Resin dipped electrolytics which use a tantalum dielectric, giving a very low leakage but a high capacitance for the size of the package. See data section for marking codes.



VAL. IN uF	VOL1 AGE	NO. 1-9	\$ 10 up	VAL. IN uF	VOLT- AGE	NO.	\$ \$ 1-9 10 UP
0.1	35	R-4700 65¢		4.7	35		75¢ 70¢
0.22	35	R-4705 65¢		6.8	35	R-4745	75¢ 70¢
0.33	35	R-4710 65¢		10	25	R-4750	75¢ 70¢
0.47	35	R-4715 65¢		15	16	R-4755	75¢ 70¢
1	35	R-4720 65¢	60¢	22	16	R-4760	75¢ 70¢
1.5	35	R-4725 65¢	60¢	33	10	R-4765	75¢ 70¢
2.2	35	R-4730 65¢	60¢	47	6.3	R-4770	75¢ 706
3.3	35	R-4735 65¢	60¢	100	3	R-4775	75¢ 70¢

CERAMICS

Use ceramics when low inductance is important; for example, in many RF circuits. They offer a huge range of values and are all rated at 50 volts or higher.



VAL.	CAT	VAL.	CAT		CAT
IN uF	NO.	IN uF	NO		NO.
1pF	R-2215	27pF	R-2245	470pF	R-2299
1.5pF	R-2217	33pF	R-2247	560pF	R-2301
2.2pF	R-2219	39pF	R-2249	680pF	R-2303
2.7pF	R-2221	47pF	R-2251	820pF	R-2305
3.3pF	R-2223	56pF	R-2253	0.001uF	R-2307
3.9pF 4.7pF 5.6pF 6.8pF 8.2pF	R-2225 R-2227 R-2229 R-2231 R-2233	68pF 82pF 100pF 120pF 150pF	R-2257 R-2259 R-2285 R-2287 R-2289	0.0022uF 0.0033uF 0.0047uF 0.0056uF 0.0068uF	R-2311 R-2313 R-2315
10pF	R-2235	180pF	R-2291	0.0082uF	R-2319
12pF	R-2237	220pF	R-2293	0.01uF	R-2321
15pF	R-2239	270pF	R-2295	0.022uF	R-2323
18pF	R-2241	330pF	R-2296	0.033uF	R-2325
22pF	R-2243	390pF	R-2297	0.047uF	R-2327
	All one price 1-9 15¢ ea.			r more ¢ ea.	

SPECIAL CERAMICS 60V rating Special large capacitance ceramics for special applications 0.1 uF R-2360 22¢ 22¢ 10 up 20¢ 0.22uF R-2370

High volta	age ceramic	(rated at	3kV) for ma	ins suppr	ession, etc.
0.01uF	R-2400	1 - 9	\$1.30	10 up	\$1.20

CERAMIC FEEDTHROUGHS

Ideal for bypassing DC supply lines, RF amplifiers, noise suppression on motors, etc.

0.0012uF 350V R-2850 1-9 45¢ 10 up 40¢

HIGH DISCHARGE (STROBE) CAPACITOR

Used in circuits such as photographic strobes or flashes where heavy discharge currents occur. Rated at 250 volts AC with discharge resistor built in.



CAT NO	RANGE	MARKING	PRICE EA.	10 UP
R-2855	6.5uF	250V AC	\$4.60 each	\$4.20

TRIMMER CAPACITORS

DANCE

Three new film dielectric trimmers - ideal for all projects requiring capacitance adjustment. MARKING

	CAT NO	HANGE	MARKING	PRICE EA.	10 0P
	R-2915 R-2917 R-2919	5 - 70pF 10 - 100pF 2 - 18pF		\$1.00 \$1.00 \$1.20	90¢ 90¢ \$ 1.10
			Little Di	cks Family	Album -
				A	
	Z.		7A9	GED TALUK	
(- Paris		AN	774 <i>LU K</i>	42

ELECTROLYTICS

Electrolytics come in a range of different shapes and sizes but (with the exception of the bipolar type below) they have one thing in common: they are polarised and must be connected into circuit correctly. As you will note, very large capacitances are possible with note, very large electrolytic types.

VAL.	VOLT-	CAT NO	\$	\$	
IN uF	AGE		1 - 9	10 up	
0.47	63	R-4010	30¢	25¢	
1.0	350	R-4015	30¢	25¢	
2.2	63	R-4020	30¢	25¢	
3.3	25	R-4025	30¢	25¢	
4.7	25	R-4030	30¢	25¢	1
4.7	63	R-4035	30¢	25¢	
4.7	500	R-4045	60¢	55¢	
6.8	40	R-4047	25¢	20¢	
10	16	R-4055	30¢	25¢	> 5
10	25	R-4060	30¢	25¢	33.4
10	63	R-4065	30¢	25¢	4 3 0
25	25	R-4085	30¢	25¢	1000 8 100 100 100 100 100 100 100 100 100 100
25	63	R-4090	35¢	33¢	35V 1000 F 35 V
33	16	R-4095	30¢	25¢	35V
47	16	R-4105	30¢	25¢	
47	25	R-4110	35¢	30¢	7
47	63	R-4115	40¢	35¢	
47	350	R-4120	\$1.30	\$1.10	
100	10	R-4125	40¢	35¢	
100	25	R-4130	40¢	35¢	
100	63	R-4135	50¢	45¢	
100	350	R-4140	\$2.80	\$2.50	
220	16	R-4145	55¢	50¢	n
220	25	R-4150	90¢	80¢	
220	63	R-4155	\$1.00	90¢	
470	16	R-4160	80¢'	75¢	
470	63	R-4165 R-4230	\$1.30	\$1.00	
680 1000	40 16	R-4230	45¢ 95¢	40¢ 85¢	
1000	25	R-41/5	\$1.10	\$1.00	11 = 11
1000	35	R-4185	\$1.10	\$1.00	
1000	63	R-4190	\$1.95	\$1.85	
2500	16	R-4195	\$1.20	\$1.10	6.2
2500	25	R-4200	\$1.70	\$1.50	
2500	35	R-4205	\$2.15	\$2.00	Death Fred
2500	50	R-4210	\$2.50	\$2.30	100
4700	35	R-4215	\$3.00	\$2.80	
4,00	00	11-4210	Ψ3.00	Ψ2.00	U

SINGLE ENDED (PCB MOUNTING)

17 .0 .2 .7 .7 .0 6 65 .3 .3 .7 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	500 505 505 505 505 505 505 505 505 505	R-4315 R-4318 R-4320 R-4320 R-4340 R-4350 R-4360 R-4370 R-4390 R-4397 R-4400 R-4407 R-4410 R-4407	22¢¢22¢¢22¢¢228¢¢224¢224¢224¢228¢¢228¢¢	20¢ 20¢ 20¢ 25¢ 22¢ 22¢ 22¢ 23¢ 23¢ 65¢ 470¢ 65¢ 65¢	
70	10	R-4407	70¢	65¢	
000 000	50 16 25	R-4457 R-4440 R-4450	\$1,45 55¢ 80¢	\$1.35 45¢ 70¢	
200 800 0000 0000	25 10 10 40	R-4460 R-4470 R-4480 R-4483	\$1.30 \$1.30 \$1.95 \$7.95	\$1.10 \$1.10 \$1.75 \$7.25	

METAL CAN TYPE

VAL	VOLT-	CAT NO	\$	\$
IN uF	AGE		1 - 9	10 up
2200	40	R-4580	\$ 1.10	\$ 1.00
4000	75	R-4560	\$11.95	
5600	40	R-4570	\$ 5.40	\$ 4.90

BI-POLAR ELECTROLYTICS

These electrolytics are specially made not to be polarised. They are designed for use where the voltage polarity across them changes – for example, in speaker cross-overs. They have a 50 volt rating.

2.2 R-4600 5	9 10 up
3.3 R-4605 5	55¢ 50¢
4.7 R-4610 5	55¢ 50¢
6.8 R-4620 5	55¢ 50¢
10 R-4630 5	55¢ 50¢

SEMICONDUCTORS SEMICO

SILICON TRANSISTORS

Type No	Cat No	Price Ea	Price 10 up	Pol	Vce	Ic (mA)	P(tot) (mW)	Ft (MHz)
BC159 BC327 BC328 BC337 BC338	Z-1359 Z-2240 Z-2242 Z-2190 Z-2252	.17 .35 .30 .35	.14 .30 .25 .30	PNP PNP PNP NPN NPN	20 45 25 45 25	100 800 800 800 800	300 800 800 800 800	150 100 100 200 200
BC107 BC108 BC109 BC179	(See DS547) (See DS548) (See BC549) (See BC159)							
BC549C BC639 BC640 BCY71	Z-1329 Z-1388 Z-1389 Z-1241	.37 .50 .50 \$1.20	.33 .45 .45 \$1.00	NPN NPN PNP PNP	30 80 80 45	100 1A 1A 200	500 1W 1W 350	300 130 50 200
BD139 BD140 BD262 BD263	Z-1443 Z-1444 (See BD682) (See BD681)	.65 .65	.55 .55	NPN PNP	60 80	1A 1A	8W 8W	250 75
BD681 BD682 BUX80 BF115	Z-1462 Z-1460 Z-2150 Z-1560	\$1.90 \$1.90 \$6.95 .95	\$1.70 \$1.70 \$6.30 .75	NPN PNP NPN NPN	100 100 400 30	4A 4A 10A 30	40W 40W 100W 145	1 1 8 230
BF173 BF180 BF184 BF199	Z-1590 Z-1602 Z-1604 (See BF173)	\$1.25 \$1.30 \$1.25	\$1.00 \$1.10 \$1.00	NPN NPN NPN	25 20 20	25 20 30	230 150 145	550 675 300
BF469 BF470 BFR91 DS547	Z-1635 Z-1636 Z-1691 Z-1300	\$1.20 \$1.20 \$3.25 .17	\$1.00 \$1.00 \$3.00 .14	NPN NPN	12 45	36 100	180 500	5GHz 300
DS548 DS549 DS557 DS558	Z-1308 Z-1319 Z-1340 Z-1348	.17 .17 .17 .17	.14 .14 .14 .14	NPN NPN PNP PNP	30 30 45 25	100 100 100 100	500 500 300 300	300 300 150 150
MJ2955 MJ15003 MJ15004 MJE340 MJE2955	Z-1800 Z-1808 Z-1810 Z-2010 Z-2005	\$2.30 \$6.95 \$6.95 \$1.20 \$2.25	\$2.00 \$6.30 \$6.30 \$1.10 \$1.95	PNP NPN PNP NPN PNP	60 140 140 300 60	15A 20A 20A 500 10A	115W 250W 250W 20W 75W	4 2 2 - 2
MJE3055 MU9610	Z-2008 (See 2N3019)	\$2.25	\$1.95	NPN	60	10A	75W	2
MRF629 PN3563	Z-2509 Z-2180	\$16.45 .30	\$15.00 .25	NPN NPN	16 12	400 50	5W 200	500 600
PN3642 PN3645 PN4250 PN4258	Z-2250 Z-2256 Z-2320 Z-2326	.50 .30 .45 .45	.45 .25 .40 .40	NPN PNP PNP PNP	45 60 40 12	500 500 10 50	350 300 200 200	250 200 50 700
TIP31B TIP32B TT797 TT800	Z-2020 Z-2024 (See 2N4030) (See 2N4030)	.95 \$1.20	.90 \$1.10	NPN PNP	80 80	3A 3A	40W 40W	3
TT801 2SC1096 2SC1674 2SC2166	(See 2N3019) Z-2500 Z-6005 Z-2501	\$1.95 \$1.05 \$6.50	\$1.65 .95 \$6.20	NPN NPN NPN	30 20 30		10W 250 20W	60 600 150
2SC1969 2N2222A 2N3019 2N3053 2N3055	Z-2502 Z-2069 Z-2068 Z-2130 Z-1804	\$6.50 .95 \$1.10 \$1.00 \$2.30	\$6.20 .90 .95 .95 \$2.00	NPN NPN NPN NPN NPN	75 40 30 40 60	4A 800 1A 700 15A	1.5W 500 800 2.86 115W	300 100 100 .08
2N3904N 2N3905 2N3905A 2N4030 2N4292	Z-2070 Z-2244 Z-2071 Z-2064 (See PN3019)	.20 .25 .20 \$1.50	.18 .20 .18 \$1.40	PNP PNP PNP PNP	40 40 40 60	200 200 200 1A	310 310 310 800	200 200 100

FIELD EFFECT TRANSISTORS

		Vgss V@Ig(uA)			
.95 .90	NCH J	25 10	0.5	8	15
			0.5	8	15 15
		20 -	0.5	4	15
		40	0.5	6	15
			1		10 15
.85 .80		25 1	0.3	3	15
		25	2	6	15
	Ea 10 up .95 .90 \$1.00 .95 \$1.80 \$1.70 \$2.60 \$2.45 \$1.50 \$1.40 \$1.10 \$1.05 .85 .80	Ea 10 up Const. .95 .90 NCH J \$1.00 .95 NCH J \$1.80 \$1.70 NCH MS \$2.60 \$2.45 NCH J \$1.10 \$1.05 NCH J \$1.10 \$1.05 NCH J .85 .80 NCH J .70 .65 NCH J	Ea 10 up Const. V@lg(uA) .95 .90 NCH J 25 10 .91 NCH J 25 1 1 .91 NCH MOS 2092 NCH J 25 10 .91 NCH MOS 2092 NCH J 25 10 .92 NCH J 25 10 .92 NCH J 25 10 .92 NCH J 30 1 .93 NCH J 25 10 .93 NCH J 25 N	Ea 10 up Const. Verg(uA) Min .95 .90 NCH J 25 10 .5 .90 NCH J 25 1 .5 .1 .5 .1 .90 NCH J 25 1 .5 .1 .5 .1 .90 NCH J 25 1 .5 .1 .5 .1 .90 NCH MOS 20 .5 .1 .90 S1.50 \$1.40 PCH J 25 10 .5 .1 .5 .1 .50 \$1.40 PCH J 25 10 .5 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1	Ea 10 up Const. V@lg(uA) Min Max @ .95 .90 NCH J 25 10 0.5 8 .95 .90 NCH J 25 1 - 8 .91 NCH J 25 1 - 8 .91 NCH J 25 1 - 4 .91 NCH MOS 20 - 4 .91 NCH J 25 10 0.5 6 .91 NCH J 25 1 0 0.3 3 .91 1 1 6 .91 NCH J 25 1 0.3 3 3 .70 .65 NCH J 25 1 0.3 3 6 .91 NCH J 25 2 6 .91 NCH J 25 2 6 .91 NCH J 25 2 2

POWER MOSFETS

Type No	Cat No	Price	Price	Pol/ constr.	Vdss (min) V @ Id	Id (max)
2SJ48	Z-1816 Z-1815	\$7.50	\$6.75		-120 -10mA	-7

GERMANIUM TRANSISTORS

Type No AC126 AC127 AC128 AC187 AC188	Cat No Z-1054 Z-1062 Z-1064 Z-1080 Z-1082	Price Ea \$1.50 \$1.50 \$1.45 \$1.45	Price 10 up \$1.40 \$1.40 \$1.35 \$1.35	POI PNP NPN PNP NPN PNP	Vce 12 16 16 15	Ic (mA) 100 500 1A 1A 1A	P(tot) (mW) 500 340 1W 1W 220	Ft (MHz) 1.7 1.5 1
AD161 AD162 OC26 OC44N OC71	Z-1110 Z-1112 Z-1930 Z-1932 Z-1941	\$1.95 \$1.95 \$4.35 \$1.60 \$1.35	\$1.75 \$1.75 \$3.95 \$1.50 \$1.15	NPN PNP PNP PNP PNP	20 20 30 5 10	3A 3A 3.5A 10 50	4W 6W 32W 85 125	.02 .015 .3 7.5

ZENER DIODES

IODE2					
Type	Cat No	Price Ea	Price 10 up	Voltage	Power
IN746 IN750 IN751 IN752	Z-3401 Z-3403 Z-3405 Z-3407	.28 .28 .28 .28	.25 .25 .25 .25	3.3V 4.7V 5.1V 5.6V	400mW 400mW 400mW 400mW
IN753 IN957 IN961 IN963	Z-3409 Z-3411 Z-3413 Z-3415	.28 .28 .28 .28	.25 .25 .25 .25	6.2V 6.8V 10V 12V	400mW 400mW 400mW 400mW
IN965 IN967 IN4728 IN4729	Z-3417 Z-3419 Z-3515 Z-3517	.28 .28 .39 .39	.25 .25 .35 .35	15V 18V 3.3V 3.6V	400mW 400mW 1W 1W
IN4730 IN4731 IN4732 IN4733	Z-3519 Z-3521 Z-3523 Z-3525	.39 .39 .39 .39	.35 .35 .35 .35	3.9V 4.3V 4.7V 5.1V	1 W 1 W 1 W 1 W
IN4734 IN4735 IN4736 IN4737	Z-3527 Z-3529 Z-3531 Z-3533	.39 .39 .39 .39	.35 .35 .35	5.6V 6.2V 6.8V 7.5V	1W 1W 1W 1W
IN4738 IN4739 IN4740 IN4741	Z-3535 Z-3537 Z-3539 Z-3541	.39 .39 .39 .39	.35 .35 .35	8.2V 9.1V 10V 11V	1 W 1 W 1 W 1 W
IN4742 IN4743 IN4744 IN4745	Z-3543 Z-3545 Z-3547 Z-3549	.39 .39 .39	.35 .35 .35	12V 13V 15V 16V	1 W 1 W 1 W 1 W
IN4746 IN4747 IN4748 IN4749	Z-3551 Z-3553 Z-3555 Z-3557	.39 .39 .39 .39	.35 .35 .35 .35	18V 20V 22V 24V	1 W 1 W 1 W
IN4750 IN4751 IN4752	Z-3559 Z-3561 Z-3563	.39 .39 .39	.35 .35 .35	27V 30V 33V	1W 1W 1W

TRANSISTOR SOCKETS

Type	Cat No		Price 10 up
TO-5 (suit 2N3053 etc) F	2-4015	.75	.70

TRANSMITTING VALVES

Type No	Cat No	Price
		Ea
6146B	D-7202 \$	27.50
6JS6C	D-7204 \$	20.00
572B valves as use	din FL-2100ZI	inear
available from our	conside depart	mont

LOOKING FOR SEMICONDUCTOR DATA?

See pages 76 & 77 for Books or our data section

DUCTORS SEMICONDUCTORS

THYRISTORS

SCR'S Economy	Plastic P	ack				
Туре	Vdrm	It(A) rms	Use	Cat No	Price Ea	Price 10 up
C103B C106Y1 C106D C122E (BT151, TIC	200 30 400 500 C126E)	0.8 4 4 8	Small Current Sensitive Gate Sensitive Gate AC Switch	Z-4310 Z-4315 Z-4320 Z-4332	.95 .95 \$1.65 \$1.75	.90 .90 \$1.55 \$1.65
TO-48 Stu	ıd Packs					
C164D C168D	400 800	16 16	High Current High Current	Z-4354 Z-4358	\$4.70 \$7.50	\$4.50 \$7.00
TRIACS		ack				
SC141D (*May be C	400 4006L4 o	6* 2N634	AC Switch 3. both 8A)	Z-4510	\$1.60	\$1.50
SC151D († May be E	400	15†	AC Switch	Z-4520	\$3.25	\$3.00

TRIGGERING DEVICES

Type No	Device Type/Description	Cat No	Price Ea	Price
ST4	Assymetrical trigger diode - suitable trigger for SC141/151	Z-4740	\$1.00	10 up . 95
MOC3021	Opto-coupled triac driver	Z-4516	\$2.95	\$2.75

UNIJUNCTIONS

Туре	Device Type/Description	Cat No	Price Ea	Price 10 up
2N6027	Programmable unijunction (sim. D13T1)	Z-1780	.85	.70
DS2646	Unijunction (similar 2N2646)	Z-1786	\$1.30	\$1.20

OPTO-ELECTRONICS

Type No	Device Type/Description	Cat No	Price Ea	Price 10 up
FPT100	Silicon Photo Diode with lens	Z-1950	\$1.60	\$1.50
MEL12	Silicon Darlington phototransistor with lens	Z-1952	.95	.90
BPW50	Silicon Photo-diode	Z-1956	\$2.50	\$2.30
CQY89A/ LD217	Infra-red LED	Z-3235	\$1.65	\$1.55
ORP12	Light Dependent Resistor (dark value 10Mohm; light 300 ohms)	Z-4800	\$3.25	\$3.05
DSCDS01	Cadmium Sulphide (CdS) light dependent resistor, similar range ORP12	Z-4801	.70	.65
4N28	Opto Coupler - LED & photo diode in DIP package	Z-4804	\$1.60	\$1.50

GERMANIUM DIODES

Type No	Cat No	Price	Price	PIV	If	Use
		Ea	10 up		mΑ	
OA47	Z-3232	.60	.55	25	110	Gold Bonded General Purpose
OA90	Z-3030	.30	.25	20	45	General Purpose Point Contact
OA91	Z-3042	.35	.30	90	50	General Purpose Point Contact
OA95	Z-3050	.50	.45	90	50	General Purpose Point Contact

SILICON SMALL SIGNAL DIODES

BA100	Z-3060	.45	.40
IN914	Z-3120	.13	.10
OA202	Z-3100	.45	.4

RECTIFIER DIODES

Type No	Cat No	Price	Price	PIV	If	Use
		Ea	10 up		Amp	
IN4002	Z-3202	.11	.09	100	1	General Purpose
IN4004	Z-3204	.13	.11	400	1	General Purpose
IN4007	Z-3207	.15	.13	1000	1	General Purpose
IN5404	Z-3222	.50	.45	400	3	General Purpose
IN5408	Z-3228	.55	.50	1000	3	General Purpose
BYX98300	Z-3242	\$2.75	\$2.50	300	10	Stud Mount
IN3492	7-3260	\$2.95	\$2.80	100	25	Press Fit Auto

RECTIFIER BRIDGES

WO-4	Z-3304	.95	.90 400	1.5	Mini Bridge
PO-4	Z-3306		\$1.85 400		General Purpose Bridge
PB40	Z-3334	\$6.50	\$5.95 400) 25	Heavy Duty Bridge

HOT CARRIER DIODE Price 10 up **\$3.00** Price Ea 5082-2800 Schottky diode Z-3230 \$3.30

VARI	CAP DIODE		Price Ea	Price 10 up
BB119	Varicap similar BA102	Z-3070	\$1.10	\$1.00

LED DISPLAYS

Type	Digit	Construction	Cat	Price	Price
No	Size		No	Ea	10 up
LT313		Common Cathode	Z-4103	\$1.95	\$1.75
LT312		Common Anode	Z-4117	\$1.95	\$1.75
FND507		Common Anode	Z-4152	\$1.65	\$1.55
FND560	13mm	Common Cathode	Z-4150	\$2.50	\$2.25
LT547E	13mm	Common Cathode	Z-4151	\$2.95	\$2.75
TIL393-9	13mm	9 digit LED display	Z-4155	\$1.65	\$1.55

LIQUID CRYSTAL DISPLAY

LIQUI	D CR	YSTAL DISPLAY	Price	Price 10 up
LCD4.5	10mm	41/2 digit liquid crystal Z-417		

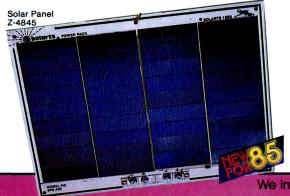
ULTRASONIC TRANSDUCERS

Highly sensitive transmit/receive pair for alarms, level detectors, TV remote control, etc. Data sheet available.

Transmitter: SCS-401 Cat L-7050 \$5.75 (10 up \$5.20)
Receiver: SCM-401 Cat L-7052 \$6.50 (10 up \$5.90)

SOLAR CELLS

Cat. No.	Size	Output Volts	Output Current	Price ea	Price 10 up
Z-4840 Z-4841 Z-4845	1.5 x 1.3cm 6 x 6cm 26.5 x 20cm	0.43 0.43 2 x 10	25mA 100mA 450mA	\$2.50 \$12.00 \$219.00	\$2.25 \$11.00 O.A.



LIGHT EMITTING DIODES

Type No	Colour	Size	Cat No.	Price EA	Price 10 up	if (mA)		Intensity @ 20mA	Notes
LT201R		3mm diam	Z-4010	.15	.13	40	1.6		Economy
LT231G		3mm diam	Z-4020	.20	.18	40	2.2	0.8mCd	Economy
LT203R	Red	5mm diam	Z-4030	.20	.16	40	1.6	1.0mCd	Economy
LT233G	Green	5mm diam	Z-4032	.30	.25	40	2.2		
LT253Y	Yellow	5mm diam	Z-4034	.22	.20	40	2.3		Economy
LT293E		5mm diam	Z-4036	.25	.22	40	1.7	3.0mCd	Economy
LT2462		5mm diam	Z-4070 Z-4075	.60 \$1.00	.55 .90	40 50	2.5		High Intensity
ESBR55	01 Red Red	5mm diam 3mm diam	Z-4073	.30	.25	40	2.1		Premium Quality
TL4231	Green	3mm diam	Z-4079	.35	.30	40	2.1		Premium Quality
TL4251	Yellow	3mm diam	Z-4081	.50	.45	40	2.1		Premium Quality
TL4291	Orange	3mm diam	Z-4083	.50	.45	40	2.0		Premium Quality
TL4213	Red	5mm diam	Z-4085	.30	.25	40	2.1		Premium Quality
TL4233	Green	5mm diam	Z-4087	.35	.30	40	2.1		Premium Quality
TL4253	Yellow	5mm diam	Z-4089	.40	.35	40	2.0		Premium Quality
TL4293	Orange	5mm diam	Z-4091	.40	.35	40	2.1		Premium Quality
TL3215		2mm x 5mm	Z-4093	.40	.35	40	2.1		Rect. Prem. Qual.
TL3235		2mm x 5mm	Z-4095	.40	.35		2.1		Rect. Prem. Qual.
TL3255	5 Yellow	2mm x 5mm	Z-4097	.40	.35	40	2.1	1.2mCd	Rect. Prem. Qual.
Z6211	Red	2mm x 5mm	Z-4040	.25	.22	40	1.6	1.0mCd	Rectangular Econ.
Z6221	Green	2mm x 5mm	Z-4042	.25	.22	40	2.2		Rectangular Econ.
Z6231	Yellow	2mm x 5mm		.25	.22		2.3		Rectangular Econ.
CQY89A	Infrared	5mm diam	Z-3235	\$1.65	\$1.55	130		9mW/sr	Infra-red output

INTEGRATED CIRCUITS INTEG

)ia	ital				
					74LS (cont) 74LS174 74LS175 74LS190 74LS191 74LS221	Hex D-type flip flop Quad D flip flop Up/down decade counter Up/down binary counter Dual monostable multivibrators (schmitt trigger)	Z-5290 Z-5291 Z-4999 Z-5000 - Z-5296	Price Ea \$1.10 \$1.15 \$1.40 \$1.50 \$1.75	Price 10 up \$1.00 \$1.05 \$1.30 \$1.40 \$1.65
Type No 81LS95 11C90 DAC0800LCN	Description Tri-state octal driver 650MHz ECL pre-scaler 88 Bit D to A converter (non linearity ± 0.19%FS)	Cat No Z-5300 Z-5361 Z-6834	Price Ea \$3.25 \$16.00 \$4.80	Price 10 up \$2.95 \$14.50 \$4.40	74LS240 74LS241 74LS244 74LS245 74LS367 74LS373 74LS374	Octal buffer/line driver Octal buffer/line driver Octal buffer/line driver Octal bus transceiver Hex bus driver & 3 stage o/p Octal 3 stage latch Octal D-type flip flop	Z-5298 Z-5293 Z-5294 Z-5299 Z-5292 Z-5295 Z-5297	\$2.20 \$2.10 \$2.40 \$2.20 \$1.25 \$2.50 \$2.00	\$2.00 \$1.90 \$2.20 \$2.00 \$1.15 \$2.30 \$1.90
DS1488 MM5837 ICL7106	RS-232C Quad line driver Noise generator LCD digital voltmeter	Z-5370 Z-6130 Z-6300	\$1.95 \$4.30 \$17.50 \$9.50	\$1.85 \$3.90 \$16.00 \$8.90	74C/	4000 CMOS Description	Cat No	Price	Price
AY-3-8112 2513 2516 2532 2102 2114 4116 4164 MM5303	Clock/frequency counter ASCII character generator 2K x 8 bit EPROM 4K x 8 bit EPROM 1K x 1 static RAM 1K x 4 static RAM 16K x 1 dynamic RAM 64K x 1 dynamic RAM UART	Z-6832 Z-9206 Z-9207 Z-9208 Z-9302 Z-9306 Z-9310 Z-9312 Z-9204	\$24.75 \$7.65 \$10.95 \$2.75 \$2.75 \$3.25 \$7.50 \$7.65	\$22.75 \$7.00 \$10.00 \$2.50 \$2.50 \$2.50 \$2.70 \$2.95 \$7.00	74C00 74C14 74C74 74C157 74C173 74C221	Quad 2 input NAND gate Hex Schmitt trigger Dual D-type edge triggered flip flop Quad 2-input multiplexer 4 Bit D-type register Dual monostable multivibrators (schmitt- trigger)	Z-5410 Z-5413 Z-5372 Z-5374 Z-5376 Z-5378	80 .80 \$1.30 \$3.75 \$2.55 \$4.10	10 up .75 .75 \$1.20 \$3.55 \$2.45 \$3.80
Z-80CPU Z-80PIO 2732A HM6116P-4	Microprocessor CPU Microprocessor PIO 4K x 8 EPROM (Intel)	Z-9100 Z-9101 Z-9209 Z-9308	\$6.95 \$6.95 \$14.95 \$13.95	\$6.50 \$6.50 \$13.95 \$12.95	74C922 74C926 74C946 4000 4001 4002 4007	16 Key encoder 4 decade counter 7 seg. output 4.5 digit counter/LCD driver Dual 3 input NOR with inverter Quad 2 input NOR gate Dual 4 input NOR gate Dual comp pair with inverter	Z-5380 Z-5414 Z-6301 Z-5600 Z-5601 Z-5602 Z-5607	\$9.50 \$8.75 \$21.95 .60 .60 .85	\$9.00 \$8.00 \$19.95 .55 .80 .80
Type No 7400 7401 7402 7404 7405 7408	Description Quad 2 input NAND gate Quad 2 input NAND o/collector Quad 2 input NOR gate Hex inverter Hex Inverter open collectors Quad 2 input AND gate	Cat No Z-5010 Z-5011 Z-5012 Z-5014 Z-5015 Z-5018	Price Ea .80 .80 .80 .80	Price 10 up .75 .75 .75 .75 .75	4009 4011 4012 4013 4015 4016 4017 4019	Hex inverter buffer/level shift Quad 2 input NAND Dual 4 input NAND Dual 1 edge triggered flip flop Dual 4 bit shift register Quad analog switch Decade counter/divider Quad AND/OR select gate	Z-5609 Z-5611 Z-5612 Z-5613 Z-5615 Z-5616 Z-5617 Z-5619	\$1.00 .60 .65 \$1.10 \$1.25 \$1.00 \$1.45 \$1.10	.90 .55 .60 \$1.00 \$1.15 .90 \$1.30 \$1.00
7410 7413 7414 7420 7430 7437 7447 7454 7473	Triple 3 input NAND gate Dual 4 input NAND Schmitt trigger Hex Schmitt trigger Dual 4 input NAND gate 8 input NAND gate 9 input NAND gate Quad 2 input NAND buffer BCD-7 segment decoder/driver 2-wide, 2 input AND-OR invert gate Dual J-K master/slave flip flop	Z-5020 Z-5023 Z-5024 Z-5030 Z-5035 Z-5040 Z-5047 Z-5054 Z-5073	.80 .85 \$1.10 .80 .80 .80 \$1.70 .80	.75 .80 \$1.00 .75 .75 .75 \$1.60 .75	4020 4022 4023 4024 4025 4026 4027 4028 4029	14 bit binary counter Divide by 8 counter Triple 3 input NAND gate 7 stage ripple counter Triple 3 input NOR gate Decade counter/7 segment divider Dual J-K flip flop BCD to decimal decoder Preset up/down binary decade counter	Z-5620 Z-5622 Z-5623 Z-5624 Z-5625 Z-5626 Z-5627 Z-5628 Z-5629	\$1.50 \$1.50 .75 \$1.20 .65 \$2.50 \$1.10 \$1.20 \$1.50 \$1.20	\$1.35 \$1.35 .70 \$1.10 .55 \$2.25 \$1.00 \$1.10 \$1.40 \$1.10
7474 7475 7476 7485 7486 7490 7492 7493 7495	Dual D-type edge triggered flip flop Quad bistable latch Dual J-K master/slave flip flop 4 bit magnitude comparator Quad 2 input EXCLUSIVE-OR gate Decade Counter Divide by 12 counter 4 bit binary counter 4 bit L-R shift register	Z-5074 Z-5075 Z-5076 Z-5085 Z-5086 Z-5090 Z-5092 Z-5093 Z-5095	.85 .85 .90 \$1.40 .95 \$1.00 \$1.00 \$1.20	.80 .80 .85 \$1.30 .90 .95 .95 .95	4030 4040 4044 4046 4047 4049 4050 4051 4066	Quad EXCLUSIVE OR gate 12 stage ripple counter Ouad 3-state NAND RS latch Phase-locked-loop Monostable/Astable multivibrator Hex inverter/buffer Hex non inverting buffer 8 channel analog multiplexer Ouad analog switch	Z-5630 Z-5640 Z-4370 Z-5646 Z-5647 Z-5649 Z-5650 Z-5651 Z-5666	\$1.25 \$1.75 \$1.65 \$2.10 \$1.90 .90 \$1.00 \$1.50 \$1.30	\$1.60 \$1.55 \$1.90 \$1.75 .80 .90 \$1.40 \$1.20
74109 74121 74123 74157 74191 74192 74193 74196	Dual J-K flip flop Monostable multivibrator Dual re-triggerable monostable Quad 2 input multiplexer Sync. binary up/down counter Sync. decade up/down counter Sync. binary up/down counter Decade divider	Z-5252 Z-5260 Z-5263 Z-5267 Z-5269 Z-5270 Z-5280 Z-5281	\$1.00 .90 \$1.35 \$1.00 \$1.60 \$1.60 \$1.50	.95 .85 \$1.25 .95 \$1.50 \$1.50 \$1.40	4068 4069 4071 4081 4082 4093 40194 4511 4516	8 input NAND gate HEX Inverter Quad 2 input OR gate Quad 2 input buffered AND gate Dual 4 input AND gate Quad 2 input NAND Schmitt trigger 4 bit bi-direct shift register BCD/7 segment decoder/driver/latch Synchronous up/down counter	Z-5668 Z-5669 Z-5671 Z-5681 Z-5682 Z-5693 Z-5694 Z-5730 Z-4362	.80 \$1.00 .65 .70 .65 .90 \$3.90 \$1.95 \$2.30	.75 .90 .55 .65 .55 .80 \$3.60 \$1.80 \$2.00
74LS Type No	Description	Cat No	Price	Price	4518 4520 4526	Dual BCD up counter Dual binary up counter 4 bit programmable down counter	Z-5740 Z-5742 Z-5744	\$2.15 \$1.75 \$1.85 \$2.45	\$1.95 \$1.60 \$1.70 \$2.20
74LS00 74LS01 74LS02	Quad 2 input NAND gate Quad 2 input NAND gate, o/collector Quad 2 input NOR gate	Z-4900 Z-4901 Z-4902	.70 .70 .70	10 up .65 .65 .65	4528 74H (Type No.		Z-4366 Cat No.		Price
74LS04 74LS05 74LS08	Hex inverter Hex inverter, open collector Quad 2 input AND gate Triple 3 input NAND gate Triple 3 input NAND gate Hex Schmitt trigger Dual 4 input NAND gate Dual 4-input positive AND gate Triple 3 input NAND gate Dual 4-input positive AND gate Triple 3 input NOR gate 8 input NAND gate Dual J-type edge trig. flip flop Dual D-type edge trig. flip flop Dual D-type edge trig. flip flop Dual J-K master/slave flip flop Dual J-type edge trig. flip flop Dual D-type edge trig. flip flop Dual D-type edge trig. flip flop Dual D-type edge trig. flip flop Dual J-type	Z-4904 Z-4905 Z-4910 Z-4912 Z-4914 Z-4920 Z-4920 Z-4927 Z-4930 Z-4931 Z-4932 Z-4973 Z-4974 Z-4976 Z-4986 Z-4990 Z-4990 Z-4990 Z-4990 Z-4990 Z-4990 Z-4990 Z-4990 Z-4992 Z-4993 Z-4992 Z-4993 Z-4992 Z-4993 Z-4993 Z-49986 Z-4992 Z-49986 Z-499	.70 .70 .70 .70 .85 .70 .70 .95 .70 .70 \$1.65 \$1.00 \$1.00 \$1.00 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25	.655 .655 .650 .650 .655 .955 .911 .150 .915 .915 .911 .140 .915 .916 .916 .916 .916 .916 .916 .916 .916	74HC00 74HC02 74HC04 74HC08 74HC11N 74HC14 74HC27 74HC30 74HC32 74HC74 74HC76 74HC123 74HC123 74HC138 74HC139 74HC139 74HC139 74HC157 74HC165 74HC165 74HC165 74HC165	Description Quad 2-input NAND gate Quad 2-input NOR gate Hex inverter Quad 2-input AND gate Triple 3-input Hex Schmitt-Trigger Dual J-K flip flop 8 input NAND gate Quad 2-input OR gate Quad 2-input OR gate Dual D-type edge triggered flip flop Dual J-K master/slave flip flop 4 Bit magnitude comparator Quad 2-input EXCLUSIVE OR gate Dual re-trigerable monostable Expandable 3/8 decoder 1 of 8 decoder/multiplexer Quad 2-input multiplexer Par load 8-bit shift register Hex D-type flip flop Dual monostable multivibrators (Schmitt trigger) Octal buffer/line driver	Cat No. 2-5800 2-5802 2-5804 2-5804 2-5811 2-5814 2-5814 2-5827 2-5832 2-5832 2-5832 2-5835 2-5935 2-5935 2-5930 2-5935 2-5945	Price Ea .90 .90 .90 .90 .90 .90 .90 .90 .90 .90	Price 10 up80 .80 .80 .80 .80 .80 .80 .80 .80 .8
74LS139 74LS153 74LS157 74LS165	1 of 8 decoder/multiplexer Dual 4-input multiplexer Quad 2-input multiplexer Par load 8 bit shift register	Z-5285 Z-5315 Z-5287 Z-5288	\$1.40 \$1.10 \$1.15 \$1.00	\$1.30 \$1.00 \$1.05 .90	74HC240 74HC244 74HC245 74HC367 74HC373	Octal buffer/line driver Octal buffer/line driver Octal bus transceiver Hex bus driver & 3 state o/p Octal 3 state latch	Z-5950 Z-5955 Z-5960 Z-5965	\$2.90 \$2.90 \$4.50 \$1.80 \$3.30	\$2.65 \$4.10 \$1.65 \$2.95

ED CIRCUITS HEATSINKS

Linear

Type No	Description	Cat No	Price Ea	Price 10 up
LM311 LM319N LM334Z LM335H LM35Z LM336AZ2-5	Re-Bit A to D converter (error±.5%LSB) Voltage comparator High speed comparator Temperature sensor Precision temperature sensor (TO-46) Precision temperature sensor (TO-92) 2.5V Reference source 2.5V Reference source Quad comparator Audio power amplifier Low noise stereo preamplifier Low noise stereo preamplifier Dual diff. supermatched pair Tone decoder RC encoder RC encoder RC encoder Frequency to voltage/current source NPN Transistor array LED flasher/oscillator 10 LED driver Triple differential amplifier Low power NBFM IF strip Universal timer Dual timer Wideband VHF/UHF amplifier Servo Amplifier (RC) General purpose CB audio amplifier CMOS timer (CMOS version of 555) Function generator One-chip radio Universal sound synthesiser	Z-6833 Z-60489 Z-6049 Z-6050 Z-6050 Z-6051 Z-6037 Z-60380 Z-6082 Z-6088 Z-6086 Z-6107 Z-61107 Z-61107 Z-61107 Z-61107 Z-61107 Z-6146 Z-6146 Z-6146 Z-6146 Z-61485 Z-61485 Z-61446 Z-61485 Z-6144 Z-61446 Z-61446 Z-61446 Z-61446 Z-61446 Z-61485 Z-61446 Z-6146 Z-6	\$13.95 \$1.00 \$3.70 \$2.15 \$4.40 \$4.95 \$1.25 \$2.75 \$1.25 \$2.75 \$2.00 \$6.95 \$3.45 \$1.25 \$1.95 \$4.95 \$1.10 \$4.95 \$1.10 \$4.95	\$12.90 \$3.50 \$2.20 \$4.70 \$1.80 \$2.50 \$1.80 \$2.50 \$1.80 \$6.30 \$1.85 \$6.30 \$1.85 \$4.50 \$4.75 \$4.75 \$4.75 \$4.75 \$4.75 \$4.75 \$4.75 \$4.75 \$4.75 \$4.75



Dual diff. supermatched pair?

LINEAR OPERATIONAL AMPS

Type No	Description	Cat No	Price Ea	Price 10 up
CA3080	Transconductance op amp	Z-6024	\$2.45	\$2.20 \$6.50
CA3100 CA3130	Wideband op amp Fet input op amp	Z-6010 Z-6025	\$7.20 \$2.95	\$2.80
CA3140	Fet input op amp	Z-5417	\$1.60	\$1.40
LM10CLN	Op amp/voltage reference	Z-6084	\$6.95	\$6.30
LM301 LM308	General purpose op-amp General purpose op-amp	Z-6040 Z-6045	\$1.00 \$1.20	.90 \$1.10
LM308	Quad op amp	Z-6102	\$1.20	\$1.10
LM3900	Quad 'Norton' op amp	Z-6100	\$1.30	\$1.20
LM13080N LM13600N	Programmable power op amp	Z-6106 Z-6113	\$1.99 \$1.95	\$1.90 \$1.85
NE5534P	Dual transconductance amplifier Low noise op amp	Z-6090	\$1.95 \$2.95	\$2.65
TL071CP	JFET op amp	Z-6030	\$1.20	\$1.10
TL072CP	Dual JFET op amp	Z-6032	\$1.45	\$1.35
TL074CP TLC251	Quad JFET op amp Programm, low power (CMOS) op amp	Z-6034 Z-6021	\$3.40 \$3.25	\$3.10 \$2.95
uA709	General purpose op amp	Z-6352	\$1.50	\$1.30
uA741	General purpose op amp	Z-6382	.80	.75
uA4136	Quad op amp	Z-6105	\$2.00	\$1.80

VOLTAGE REGULATORS

Type No	Description	Cat No	Price Ea	Price 10 up
LM78L05CZ	3-Terminal 5V 100mA positive regulator	Z-6108	.60	.55
	3-Terminal 12V 100mA positive regulator		.60	.55
LM78L15ACZ	' 3-Terminal 15V 100mA positive regulator	r Z-6111	.60	.55
LM350	Adjustable 1.2-32V 3A regulator	Z-6560	\$5.45	\$4.95
LM723	Adjustable 2-37V 150mA regulator	Z-6362	.95	.75
LM317/T	Adjustable 1.2-37V 1.5A, TO-220 case	Z-6541	\$2.10	\$1.90
LM317/K	Adjustable 1.2-37V 1.5A, TO-3 case	Z-6542	\$3.85	\$3.50
7805	3 terminal 5 volt 1A positive regulator	Z-6545	\$1.10	\$1.00
7812	3 terminal 12 volt 1A positive regulator	Z-6552	\$1.20	\$1.10
7815	3 terminal 15 volt 1A positive regulator	Z-6554	\$1.20	\$1.10
7905	3 terminal 5 volt 1A negative regulator	Z-6555	\$1.50	\$1.40
7912	3 terminal 12 volt 1A negative regulator	Z-6556	\$1.50	\$1.40
7915	3 terminal 15 volt 1A negative regulator	Z-6557	\$1.50	\$1.40
uA78H05	5 volt 5A positive regulator, TO-3	Z-6570	\$12.50	\$11.50

For more data case connections, etc see data pages

ALUMINIUM HEATSINKS

PCB MOUNTING

Just right for today's projects with everything mounted on the pcb. two heatsinks that also mount on the pcb. Designed to be soldered direct to the tracks, with their fins mounted vertically for even more heat loss.

Two handy types to choose from:

LARGE:

H pattern, 30 x 30 x 30 mm, drilled to take a single flat-pack semiconductor (can be redrilled for other types).

Cat H-3495 **\$ 4** 70



SMALL:

U pattern, 17 x 15 x30mm high. Again, drilled for a single flat-pack, with tapped 4BA hole Cat H-3490

\$ 1 20





Manufactured to exacting tolerances to ensure a snug fit and best possible heat transfer on TO-5 cases. Massive body allows rapid heat dissipation.

POWERFIN FOR TO-3



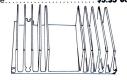
This heatsink gives the greatest possible heat dissipation in the smallest possible space. It has a unique fin design that gives a very high air to metal ratio (thermal rating approximately 5 degrees C/Watt). Measures only 50mm square x25mm high, pre-punched to suit TO-3 case. Black anodised finish.

Cat H-3400....1-9...\$1.95 ea 10 or more...\$1.80 ea

VERSATILE POWER HEATSINK

The ingenious design of this heatsink makes it possible to mount it either flat on panel, or at right angles to it (eg inside a case). The side fins also have tongue & groove so they may be joined sideways. Drilled version takes 2x TO-3's. Size is (mm) 78 x 110 x 33.

Undrilled Cat H-3460....1-4.... **\$5.75 ea** 5 or more **\$5.25 ea** Pre-drilled Cat H-3461 1-5 ... \$5.95 ea \$5.35 ea



UNIVERSAL

Universal hole pattern allows the mounting of virtually all 'power' type semiconductors. Ribbed walls and black anodised finish for maximum efficiency.

Cat H-3401.....1-9...\$1.25 ea 10 or more....\$1.15 ea



TO-220 HEATSINK PACKS

Pack of five clip-on heatsinks for TO-220 type semis (also adaptable to other types). Size 25 x 20mm, spring-type connection ensures good metal contact for efficient





Because it suits virtually all flat (plastic type) semiconductors, this heatsink is used extensively on PCB, etc. Has vertical flutes for maximum thermal efficiency.

ECONOMY POWER HEATSINK



Flag mounting with fins both top and bottom. Available in either drilled or undrilled versions, drilled accepts two power transistors of most type: TO-3, TO-126, TO-220, etc. Size (mm) 75 x 102 x 25. Thermal resistance mounting surface to ambient –1 degree/watt (at 2 ft/sec forced air flow). Mounting surface temperature rise above ambient with no forced air flow 60 degrees @ 30W heat dissipation level.

aloupation level.		
Undrilled Cat H-3470	1-9	\$3.90 ea
10 or more		\$3.55 ea
Pre-drilled Cat H-3471 10 or more	. 1-9	\$4.50 ea
10 or more		\$4.10 ea

HIGH EFFICIENCY POWER HEATSINK

With its thick base and radial fin design this heatsink is able to dissipate huge amounts heatsink is able to dissipate huge amounts of heat. It is black anodised for even greater efficiency. Thermal resistance mounting surface to ambient –1 degree/watt (at 2 ft/sec forced air flow). Mounting surface temperature rise above ambient with no forced air flow 60 degrees @ 30W heat dissipation level.

Cat H-3422. 10 or more.



EXTRA HEAVY DUTY **POWERFIN HEATSINK**

225mm length!
Similar to above heatsink in cross section, but three times the length. For those big projects where all of heat has to be removed Cat H-3426. 1-9. \$11.25 ea 10 or more. \$10.25



KNOBS & RELAYS

KNOBS Metric Range



Tiny elegant knob, finished in black with silver shoulder and pointer. 14mm diam, 12mm deep. Cat H-3820

Black body with deep flutes down side for positive grip. White radius pointer. Size 16mm diam, 17mm deep. Cat H-3826

Black finished knob with silver shoulder and white marker. 21 mm diam, 22 mm

deep. Cat H-3830 \$ 10

Aluminium knob with fine serrations down top third of body. With pointer, size 21 mm diam, 18 mm deep. Cat H-3834

Superbly elegant knob in bright aluminium with fine vertical lines around body. 25mm diam, 17mm deep Cat H-3842

COLOURED PLASTIC KNOBS

What a colourful idea! Now your projects can really look the

part with these snazzy coloured knobs. Use them to colour code sections (great on multi-channel mixers, lighting consoles, etc). 16mm diam, standard metric (fluted shaft) fitting.

Inserts can be changed to suit the occasion! Choice of four

10 or more 75¢

10 or more **70**¢

10 or more **\$1.00**

10 or more \$1.05

10 or more **85¢**



Incredibly popular knob for quality project use. Satin finish aluminium with knurled body. 25mm diam, knurlea boo, 17 mm deep. Cat H-3843 \$ 110

10 or more \$1.00



The smallest of four matching project knobs. Integral pointer across top, size just 11mm body, 15mm skirt and 15mm overall.
Cat H-3850

10 or more **55**¢ **60**¢

A little larger: ideal for test instruments, etc. 15mm wide with 20mm skirt, knob height 15mm. Cat H-3855

10 or more **70¢**



Larger again: great as a tone control or switch knob on amplifiers, etc. 20mm wide with 25mm skirt, 16mm deep.
Cat H-3860

Cat H-3860 90¢



The largest of the series: ideal volume or other main control used in conjunction with above knobs. wide skirt, 28mm wide body and 17mm height. Cat H-3865

10 or more\$1.10 \$ 4 20

RELAYS

CRADLE RELAYS

Our standard cradle relay range is perfect for hobbyist projects, industrial replacement, etc.
They suit the sockets below if PCB mounting is required. Insulation effective to 500V at 50Hz, with contacts rated at 30W (1A or 100V). Operation time typically 6-10ms, release time





Gold flashed silver contacts handle 30W (1A or 100V)

Cat No.	S-7012	S-7020
Voltage	12 Volt	12 Volt
Contact type	DPDT	4PDT
Coil voltage - Min.	8V	8V
Nom.	12V	12V
Max.	17V	17V
Coil resistance	325 ohms	185 ohms
Contact assembly	2 C/O	4 C/O
Price each	\$8.50	\$9.50
10 or more	\$7.65	\$8.55

CRADLE RELAY SOCKETS

Silver plated socket to suit Cradle relays. 2.C.O. Type 4.C.O. Type Cat P-4732 Cat P-4734 Price each: \$2.40 10 or more: \$2.20



12V AUTOMOTIVE RELAYS HORN RELAY

Heavy duty relay intended for use in 12 volt vehicle systems. Very high contact rating is ideal for horns, ignition disables, burglar alarms, etc. ables, burglar alarms Negative switching only SPST contact.

Contact voltage (nom)
Nominal coil voltage:

Price each: \$4.60 10 or more: \$4.20



DOUBLE POLE LAMP RELAY

Very heavy duty relay, with double pole contacts each rated at a massive 30 amps. Ideal for such applications as QI driving lights - or wire both contacts in parallel for a huge 60 amps single pole relay

ULTRA MINIATURE

version interfaces (via suitable

buffer) to TTL. Contact rating is 100V at 0.5A (res). SPST.

a standard 2.54mm matrix (eg Nominal coil voltage: Vero or DIL) boards & the 5V Coil resistance:

S-7304 2 x 30A Contact current (max): Contact voltage (nom): Nominal coil voltage:

Price each: \$12.50 10 or more: \$11.50



(10 up \$1.20 ea) RED: Cat H-3800 ORANGE: Cat H-3802 BLUE: Cat H-3804 GREEN: Cat H-3806

SLIDER POT KNOBS

with-it colours: ALL ONE PRICE:



Push-on knob for 8mm slider pot shafts. 'Chromed' plastic with black face and marker line. 15mm deep, with rear dimensions 10.5 x 16mm.Cat H-3780 10 up **75¢ 80¢**



Black anodised knob to suit slider pots. As used in the Playmaster Graphic Equaliser Size 10mm dia. 16mm

Cat H-3782

10 up **55¢ 60**¢

VERNIER DRIVE

Precision vernier drive designed for front panel mounting. 50mm diam. Cat H-3900

\$595 10 up \$5.50



IMPERIAL

Machined brass shaft for gangs, etc. Cat H-3950 \$

10 up \$1.95



These are mainly intended to be used

KNOBS Imperial Range



A superb instrument knob with wide skirt, calibrated 1-10 in black on silver. Size 37mm dia. 15mm deep. Cat H-3770

10 up \$1.00 \$410

Another very popular knob. The pointer runs right through from the top to the edge of the skirt. Silver insert. Size 24mm dia. 14mm deep. Cat H-3772 10 up **75¢ 80**¢

as replacements on existing equipment. They fit standard ¼ inch shafts, and are tightened by a grub screw.



Small knob with fluted sides, small skirt with dot pointer. Size 19mm 13mm deep. Cat H-3762

10 up 60¢ 65¢



A very popular knob for all instruments, etc. Very positive grip and wide skirt with white pointer engraved on top. Size 32mm dia. 16mm deep. Cat H-3766

H-3766 **70**¢

MINLATURE
Small in size but very handy contact rating! The silver plated SPDT contacts will plated SPDI contacts will handle up to a massive 2 amps (at 24V DC or 100V AC). Nominally 8 to 12V operating, but will work ok up to 15 volts.

S-7120 Contact current (max): Contact voltage (Max): Nominal coil voltage: Coil resistance:

Price ea: \$2.45 10 or more: \$2.20

225 ohm

56 ohm

Price ea: \$3.45

10 or more: \$3.20

12V 320 ohm

STANDARD

Our most popular relay. Ideal for direct mounting on PCB's. Housed in plastic dustproof case: as used in a large number of EA and ETI projects.

240V 12V 180 ohm Price ea: \$7.70

10 or more: \$7.45 S-7200 10A 240V

HIGH RATING POWER RELAY A small, but high capacity relay ideal for power switching with a massive contact rating of 10A. Great for switching 240V projects from transistor or IC control. Control. Contact current (m Contact voltage (M Nominal coil voltage (M Nominal co Contact current (max): Contact voltage (Max): Nominal coil voltage: Coil Resistance: 160 ohm

Price ea: **\$10.50** 10 or more: **\$10.00**





SCOOP PURCHASE SPDT

What a bargain! Famous 'Omron' brand mini relay, can be either pcb mounted or screwed down. Ideal for huge range of circuitry, will pull in reliably from 16 volts up to 30 volts, high contact rating.

Price ea: 50¢

PANEL METERS, LAMPS & BEZELS

Standard Range Panel Meters



A high quality range of moving coil meters, with full scale accuracy better than 2%. Pre-calibrated in 5 popular varieties; easily adapted to suit virtually any requirement with shunts and multipliers. The scale area is covered in clear perspex, with the remainder of the meter body matte black. All the meters have a fine needle for optimum accuracy in reading, and all have mechanical zero adjustment. Mounting is by four bolts (mounted on meter body) with nuts and washers supplied.

Dimensions: Scale area - 58 x 31mm Hole Required - 44mm Overall - 58 x 52mm

Mounting:

Bolt holes: 38mm square

0-1 mA 0-50 uA 0-5A (200 ohms) (3500 ohms) (0.03 ohms 0-204 (0.007 ohms shunt) shunt)
Cat Q-2010 Cat Q-2020 Cat Q-2030 Cat Q-2035

Great value! ONLY

0-20V DC -20-+3VU (1 k ohms/V) (1.228V/0dB)

10 or more \$9.85 ea.

Cat Q-2040 Cat Q-2050

Level Meters



Signal Strength 250uA FSD scale labelled 1-10 Cat Q-2100



Tuning Centre Zero Sensitivity is 250uA half FSD (in either direction). Cat Q-2095

each

Particularly suitable for AM/FM tuner & receiver projects, but also ideal for a huge range of other projects. Meter scale size 35 x 15mm (same size as cut-out required); impedance 1k. Straw coloured meter face, looks really great back-lit.



Edge Level Meter 495 Cat Q-2110 10 up \$4.20 ea

As used in many imported cassettes, amplifiers, etc. Graduated 1 to 10 with 'battery check' stripe under the main scale. Scale size 32 x 10mm, it is ideal for a fine level adjustment meter, audio or battery level, etc. Mounts with screws, hole centres

Large Panel Meters

In two ranges - 100uA & 1mA Larger style for larger projects. Size is 100 x 82mm, scale size 100 x 50mm. Requires a 63mm mounting hole, bolt centres 80 x

10 up \$12.50 each





0-100uA

Moving Iron Range

Rugged and accurate AC/DC metres ideal for power supplies, etc. Oval style meter, size approx 55mm wide x 58mm high.





0-10A (AC & DC) Cat Q-2090



0-20V (AC & DC)

Cat Q-2080

Bezels

MINIATURE LED BEZEL

Our most popular, Low volts) but offering high visibility. Smart chrome bezel, needs a 7mm hole. Two colours available: red & green.

\$4 55

Green: Cat S-3529

\$4 65 10 up \$1.40 ea 10 up \$1.50 ea

DUAL COLOUR LED BEZEL

Red & Green in one! A fantastic idea! Two LEDs in one bezel - ideal for twostate indication (on/off, etc). Chrome plated bezel, ideal for logic circuits, etc.
Operates on 1.3 - 1.5V @
25 - 30mA. Cat S-3530

10 up \$2.35 each

LED MOUNTING

When using LEDs on front panels, etc, use these selflocking bezels. Suit standard size (5mm) LEDs, and make a really neat job. They work out at around 6¢ each! (Pack of 15 bezels). Cat H-1910



MINIATURE NEON BEZEL

A favourite because of its tiny size. Used a lot in mains powered projects -simply use 270k resistor in series. Requires only 7mm mounting hole, and the bezel itself is chromecoloured. Remember to use a series resistor with all neons - they tend to get



10 up 90¢ ea Cat S-3552

240V NEON BEZEL

Intended for 240 volt projects, this bezel can be wired direct to the mains. It has a series resistor actually mounted inside the bezel case. It requires a 9mm mounting hole, front of bezel is neat clear plastic resulting in high visibility red light from

10 up \$1.00 ea Cat S-3550

12V BEZEL

A very attractive medium size bezel using a 12V LES bulb. The plastic lens is available in two colours (red and green) for various uses, and the lens itself is flat-topped, resulting in a modern appearance. The body of the bezel is chrome plated. Requires an 11mm mounting hole, and obviously 12 volts AC or DC. don't forget to order the colour you require. Red - Cat S-3510



10 up 95¢

Lamps

NEONS

Small pigtail type neon timing circuits, oscillators, etc etc. Striking voltage 70 90 volts at 600uA. For 240V operation use 270k 1/4W resistor (other voltages can be worked out from Ohm's law.



40 up 35¢ eg

COLOURED 240V **FLOODLAMPS** Coloured PAR38 flood-

lamps, made of pressed glass with internal reflector for optimum brilliance. Ideal for display, party or other decorative or warning purposes. Available in four colours; 10 up \$7.00 ea

Holder to suit

Swivel Edison Screw lamp holder to suit PAR38 bulbs.

10 up \$5.75 ea.

'BLACKLITE' GLOBE

240V incandescent lamp especially made for emitting UV light. Standard bayonet cap (BC) fitting so you can plug it into an ordinary light socket. For parties, special lighting effects, etc. Cat S-3900 \$



MES/LES LAMPS

Green - Cat S-3512

Miniature Edison Screw (MES) and Lilliput Edison Screw (LES) bulbs for dial lamps, etc. Standard 6 and 12 volt types. Ideal for all replacements





MES 6 VOLT Cat S-3806 6 VOLT Cat S-3836 12 VOLT Cat S-3812 12 VOLT Cat S-3842

Socket to suit MES bulbs. Cat. S-3880 10 up 60¢ ea 65¢

XENON FLASHTUBE

Xenon-filled flash tube, as used in strobes, warning and safety applications, photographic work, etc etc. And look at the bargain price: you'd expect to pay double! Operate from 200 - 400 volts (300V nominal) with 4kV trigger. 5 watts maximum input power. Cat S-3882

10 up \$2.45 ea.

Trigger Transformer to suit

4kV trigger transformer for above flashtube. PCB mounting type, 300V primary, 4kV sec. Cat M-0104

10 up \$1.30 ea

PLUGS & SOCKETS

PLUGS Red P-1420 Black P-1422



Black P-1412

45¢

10 up 40¢

PANEL SOCKETS 65¢ 10 up 60¢ 6

Single. Screw Mount P-1430

10 up 50¢ 🖖

Stereo P-1442

10 up 70¢

0000

10 up \$1.15

10 up \$1.80 **\$200**

DC POWER

STAR PLUG 2.5 & 2.1mm (as below) plus 2.5 & 3.5mm phono type all on one unit. Simply plugs in a 2.5mm plug. Reversible polarity

200 10 up \$1.80 2.1mm PLUG

P-1641 50¢

0 10 up 45¢ 2.5mm PLUG

50¢ 2.1mm SOCKET

Switching 65¢ P-1661 10 up 60¢

2.5mm SOCKET

Switching

65¢ P-1665

DIN

2 PIN LINE **PLUG** P-1520



10 up 45¢

10 up 45¢

50°

2 PIN PANEL SOCKET P-1522

2 PIN LINE

SOCKET suits P-1520

50¢ P-1524 10 up 45¢

3 PIN LINE PLUG

P-1530

10 up 65¢ 70¢

5 PIN LINE PLUG P-1550

10 up 70¢

5 PIN PANEL SOCKET Suits P-1550 P-1552 10 up 65¢

70¢

5 PIN LINE SOCKET Suit P-1550 P-1554

10 up 90¢

MICROPHONE

4 POLE METAL PANEL MT. P-1824

\$465

10 up \$1.55

LINE SOCKET Suit P-1824 P-1834

\$ 200

10 up \$1.90

2 POLE **HEAVY DUTY METAL PLUG** & SOCKET

\$360

10 up \$3.30

BANANA

4mm PLUGS Red P-1710 Black P-1712 Yellow P-1714 Green P-1716



4mm SOCKETS Red P-1720 Black P-1722

45°

10 up 40¢

10 up 40¢

4mm SOCKET WITH **BINDING POST** Red P-1730 Black P-1732 Yellow P-1734 Green P-1736 0

60°

10 up 55¢

CANNON

LINE SOCKET P-1620 \$450

10 up \$4.00

3 PIN PANEL PLUG



3 PIN LINE PLUG P-1624



\$**4**50

10 up \$4.00

3 PIN PANEL SOCKET

P-1626 \$495

10 up \$4.50

MAINS CONNECTORS 240V. Approved line plug P-1627

\$**7**65 10 up \$ 7.50

240V. Approved **Panel Socket** P-1630

\$765 10 up \$7.50



PHONO



35 **4**0¢ 10 up 35¢

10 up 30¢

Stereo

Socket P-1240

3.5mm MINIATURE **Red P-1132**

Black P-1134 P-1231 **4**0¢ 10 up 40¢ 10 up 30¢

Stereo

65¢ \$4 10

10 up \$1.00 10 up 60¢ **LINE SOCKETS** Red P-1234

Black P-1236 55¢ 10 up 50¢

STEREO LINE SOCKET 0000

90[¢]_{10 up 85¢} Metal Mono Plug

65° Cat P-1136 10 up 60¢

6.5mm STANDARD



85 10 up 70¢ 10 up 80¢

Metal Plug available P-1162 10 up\$1.00



Plug P-1166 Socket P-1266 \$410 \$400

10 up \$1.00 10 up 95¢ Metal Stereo Plug \$ 420 available

P-1168 10 up \$1.10 Line Sockets

Mono: P-1264 80° 10 up 66¢ Stereo: P-1286

90¢ 10 up 85¢ Stereo Panel Socket with DTDT Switch deal for headphone sockets

\$400 10 up 95¢



UHF

ADAPTOR PLUG BNC TO **UHF SO-239 SOCKET**

TO UHF PL-259 PLUG

\$260 10 up \$2.30 PL 259

Co-ax line plug to connect antenna/ to rig P-2310

\$ 4 65

PL-259 REDUCER No soldering required, use with PL 259 to give tight fit for 50 ohm co-ax Suit P-2310 (above)

PI 259 Suits RG-58 co-ax without the need for a reducer

\$ 4 65

JOINER SO-239 NO SOLDERING JOINER Two sockets for use back to back with PL-259

\$200 P-2380

SINGLE MOUNT SOCKET SO-239 to accept PL-259 plug Screw type mounting chassis

\$ 4 50

10 up \$1.40 PANEL MOUNTING

SO-239 to suit PL-259

\$ 4 40 10 up \$1.30 T-CONNECTOR

With PL-259 plug & SO-239 sockets

\$ 150 10 up \$4.05

RIGHT ANGLE With SO-239 socket & PL-259 plug. P-2382

10 up \$2.60

'N' CONNECTORS SILVER PLATED Male line plug Cat P-2400 10 up \$4.50

Female Line Socket 10 up \$4.45

Chassis Socket Cat P-2410

CO-AXIAL

PLASTIC LINE PLUG

P-2020

\$4 50

10 up\$1.20

PLASTIC LINE SOCKET

\$ 4 00

10 up 95¢

IN LINE JOINER Suit P-2020, P-2021 P-2070

\$ 4 20 10 up \$1.10

PANEL SOCKET Suit P-2020, P-2021 P-2040

\$ 4 20

10 up \$1.10

TV WALL PLATE with 75 ohm socket Plastic wall plate with built in 75 ohm TV connector. Can also be used as a 75

300 OHM

cable, Comes

PLUG

TO A PORT OF THE PROPERTY OF T P-2082

BNC

BNC LINE PLUG Suitable for RG58RU cable P-2210 10 up \$2.00

\$225

10 up \$2.30

ancillary equipment

10 up \$1.50



P-2312 10 up \$1.50

10 up \$1.90

ohm splitter Cat P-2042

\$ 350





BNC PANEL SOCKET















PLUCS & SO

MULTI PIN PLUGS AND **SOCKETS**

2 PIN LINE PLUG P-3110

10 up 60¢ 2 PIN CHASSIS SOCKET FOR P-3110 P-3115

70¢ 10 up 65¢ 4 PIN LINE PLUG P-3120 55¢

10 up 50¢ 5 PIN LINE PLUG P-3125

65¢ 10 up 60¢

5 PIN CHASSIS SOCKET FOR P-3120

P-3135

75¢ 10 up 70¢ **COVER FOR P-3120** & P-3125

P-3140 45¢

10 up 40¢ **8 PIN CHASSIS SOCKET**

P-3025 **\$ 4** 30

10 up \$1.20 8 PIN LINE PLUG WITH COVER P-3010

\$**4**30

10 up \$1.20 9 PIN PLUG & SOCKET ASSEMBLY



\$**4**75 10 up \$1.65 Complete with covers

CAR RADIO ANTENNA

ANTENNA PLUG P-2000 CHASSIS P-2004

50¢ 10 up 45¢

CRYSTAL SOCKET

TYPE K SMALL

P-4720 60¢ (



QUICK CONNECT

QUICK CONNECTOR 10 packs or more

85¢ Pack of 10 MALE CONNECTOR for P-5012 P-5016

10 packs or more 85¢ COVER FOR P-5012 & P-5016 P-5022

10 packs or more Pack of 10 80° 75¢ DOUBLE ADAPTOR

0

P-5026 Pack of 6 10 packs **95**¢

ROUND LUG 3/16" HOLE P-5032 Pack of 12 80° 🖘 10 up 75¢

SPADE CONNECTOR P-5036 P-5036 Pack of 15 95¢ 10 packs or more 85¢

BULLET TERMINAL (Male) P-5006 \$ 4 05 Pack of 10

10 Packs or more 95¢ PLASTIC COVER TO SUIT ABOVE 55¢

P-5007 10 packs or more 50c BULLET TERMINAL (female) P-5008

\$ 4 05 Pack of 10 10 Packs or more 95¢ PLASTIC COVER TO SUIT ABOVE

55° Pack of 10 10 Packs or more 50¢

> **SOLDER** LUGS

ASSORTED SOLDER (O) Single & double ended types, 3.4mm hole.

\$**4**95 Pack of 50

CAR CIG LIGHTER **PLUG**

Extremely handy for operating recorders or any other 12 volt 85¢

COMPUTER **CONNECTORS**

EDGE CONNECTOR S-100 BUS Standard 100 pin socket for S-100 High contact life for maximum efficiency. P-2670



IDC EDGE CONNECTORS 4-way Cat. P-2760 \$895 10 up \$8.00 40-way Cat. P-2762 10 up \$8.75 \$950

\$**Q**95

\$650

\$695

50-way Cat. P-2764 10 up \$9.00 IDC FLAT RIBBON SOCKETS



34-way Cat. P-2750 10 up \$5.45 40-way Cat. P-2752 10 up \$6.00 50-way Cat. P-275-

'D' TYPE CONNECTORS

25 Pin Cat. P-2690 10 up \$3.50 \$395 **15 Pin** Cat. P-2687 10 up \$2.75 \$**2**95 9 Pin Cat P-2684 10 up \$2.20 \$245

SOCKETS (SOLDER TAIL) **25 Pin** Cat. P-2691 10 up \$4.45 \$475 15 Pin Cat. P-2688 10 up \$3.65 \$395 9 Pin Cat. P-2685

\$290 10 up \$2.50 BACKSHELLS Suit P-2690, P-2691 Cat. P-2692 10 up \$2.30 \$395

Suit Challenger, RS232 Cat P-2696 10 up \$3.50 Suit P-2687, P-2688 \$350 Cat. P-2689 10 up \$3.20

Suit P-2684, P.2685 \$ 4 95 Cat. P-2686 10 up \$1.75 25 PIN R/ANGLE PCB MOUNT

\$695 Cat P-2695 10 up \$6.25 25 PIN IDC FLAT RIBBON \$4050 Plug Cat. P-2693

10 up \$9.50 Socket Cat.P-2694 10 up \$10.50

\$4450 36 WAY IDC FLAT RIBBON CENTRONICS TYPE PLUG



\$4395 PRINTER PLUG 57-30360 type, suits most printers. With cover. P-2680

\$15% 10 up \$14.50 PRINTER SOCKET 57-403360 Centronics



EDGE CONNECTORS

EDGE CONNECTOR

Designed for conventional 'plug-in' connection of 1/16" thick PC or Dick Smith strip board. Gold plated tintillate bronze contacts, rated at 5A DC standard 0.1" spacing. Comes complete with mounting feet & polarising key.

16 way edge connector. P-2816

\$**4**50 (10 up \$4.00)

24 way edge connector P-2824

\$495 (10 up \$4.50)

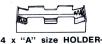


BATTERY **HOLDER** & SNAPS

BATTERY SNAP Cat P-6216 (10 up 20¢) **25**¢

4 x "D" size HOLDERsquare Cat P-6101 55° (10 up 50¢)[\]

4 x "C" size HOLDER-flat Cat P-6104 (10 up 70¢)



long flat Cat P-6114 **60**¢ (10 up 55¢)



6 x "AA" size HOLDERrectangular



4 x "AA" size HOLDERsquare Cat P-6124

60¢ (10 up 55¢)

8 x "AA" size HOLDERrectangular (10 up \$1.10) \$ **4** 20 Cat P-6128

Why endanger valuable

IC SOCKETS

& PLUGS

IC's by soldering them directly into circuit? Take the safe approach: use an IC socket! It makes

service and repair of your project much, much easier too. There's an IC socket to suit almost all common



8 Pin Mini DIL Socket 25¢ (10 up 20¢) Cat P-4080

14 Pin DIL Socket 30¢ Cat P-4140 (10 up 25¢)

14 Pin DIL Plug \$2.45 Cat P-4142 **(10 up \$2.25)**

16 Pin DIL Socket 35¢ Cat P-4160 (10 up 30¢) 16 Pin DIL Plug

Cat P-4162 (10 up \$2.75) 18 Pin DIL Socket Cat P-4180 (10 up 30¢)

20 Pin DIL Socket Cat P-4200 (10 up 35¢)

22 Pin DIL Socket Cat P-4220 (10 up 40¢)

24 Pin DIL Socket Cat P-4240 (10 up 45¢) 28 Pin DIL Socket 55¢ (10 up 50¢)

Cat P-4245

40 Pin DIL Socket Cat P-4250 (10 up 60¢)

14 Pin w/wrap DIL Socket \$1.20 Cat P-4260 (10 up \$1.10) 20 Pin w/wrap DIL Socket

Cat P-4264 (10 up \$2.00) 24 Pin w/wrap DIL Socket

Cat P-4268 (10 up \$2.10) TRANSISTOR SOCKETS

TO-5 suit 2N3053 etc 75¢ Cat P-4015 (10 up 70¢) TO-3 suit 2N3055 etc 60¢



MOLEX IC SOCKET STRIP

Fantastic ideal Never run out of IC sockets - because you make your own. Just cut the required number of pins from the strip and solder them in. After you insert the IC, you break off the carrier strip (also helps protect the IC from static damage). 100 pins strip.

Cat P-4504 . . . Pack of 100 Molex IC socket strips.



TERMINALS

BARRIER STRIPS

Each terminal has two screws and two pre-tinned solder lugs. Mounting screw holes each end of the tough plastic



4-way Ca		
		\$1.65
10 or mo	ore	\$1.50
8-way	Cat	H-6708
1-9		\$3.20
10 or mo	ore	\$2.90
12-way (Cat H-671	12
1-9		\$4.25
10 or mo	ore	\$3.95

Pre-tinned solder lugs firmly attached to phenolic board. The centre lug extends to a foot, to make a convenient earth bracket.



3-lug Cat H-6403 1-9	25¢
10 or more	22¢
5-lug Cat H-6405	30¢
10 or more	
7-lug Cat H-6407	35¢
10 or more	30¢
MAINS TERMINA BLOCKS	L

With nylon, mains terminal strip, two screws per term-inal, a twelve way, or by cutt-ing the strip, any number of terminals. 240V AC rating.



1-9.....\$1.50 10 or more\$1.40

SCREW TERMINALS

Popular strips with screw terminals on one side of the phenolic strip with a mounting hole at each end.



2-way Cat H-6622 1 - 9	654
10 or more	604
4- way Cat H-6624 1 - 9	956
10 or more	85

CONNECTOR TERMINALS

Red and black plastic covered spring loaded terminals for instant connect and disconnect with solder lug on underside of phenolic mounting board.

Ideal speaker connectors on amplifiers! 4 WAY P-1765





10 up 80¢

SWITCHES SWITCHES SWIT

TOGGLE SWITCHES

ULTRA MINIATURE DPDT

The contact rating to size ratio is very high with this miniature toggle switch. Ideal for models, miniature portable instruments, or any use where a high quality miniature switch is required.

is required. D.P.D.T

125V AC 3A (240V AC 1.5A) Chrome toggle with colour Body size: 8mm x 9.3mm. Clearance: 13.5mm Complete with 2 nuts and 2 washers Gold plated connecting tips. Cat S-1245 10 or more \$1.70 each



MINIATURE TYPES

MOST POPULAR RANGE — SPECIALLY IMPORTED — EXCELLENT QUALITY

Due to the quality of these switches they can be used in many

All feature: 125V AC 5A (240V AC 2A) Chrome toggle with colour insert Complete with two nuts and two washers Mounting hole size - 6mm

Body 8mm x 13mm, clearan 125V AC 5A (240V AC 2A) Cat S-1173 10 or more \$1.00 each

Body 13mm x 13mm, clearance 17.5mm 125V AC 5A (240V AC 2A) **4** 50 10 or more \$1.20 each

DPDT CENTRE OFF

Body 12mm x 12mm, clears 125V AC 5A (240V AC 2A) Cat S-1286 10 or more \$1.90 each



DPDT CENTRE OFF MOMENTARY

As above S-1286 switch, but with a spring-125V AC 5A (240V AC 2A) Cat S-1287

10 or more \$2.95 each

APDT

Body 13mm x 21.5mm, clearance 20.5mm. Cat S-1175 10 or more \$5.20 each

HEAVY DUTY DPDT

AMAZING CONTACT CAPACITY! Although this switch is miniature in size, it offers an enormous contact to size ratio. Ideal for use where high power levels are involved and small size is of prime importance.

Features: 125V AC 10A (240V AC 5A) Chrome toggle with plastic

Body size: 12mm x 12 5mm Clearance: 20.5mm Mounting hole: 6mm Cat S-1168

10 or more \$2.25 each

RIGHT ANGLE PCB MOUNTING

With extended right angle lugs for soldering direct to pcb. No mounting nuts required (there's no thread anyway!) Same style actuator as mini toggle switches above. Cat S-1180

20V AC & DC. 0.4A Chrome toggle and body Mounting hole 6mm



4-WAY SWITCH PACK

This switch is ideal for audio switching in kit type amplifiers or similar applications. Each individual switch section is D.P.D.T. and is mechanically interlocked so that only one press button can be on at one time

Features: Mounting centres: 75mm Clearance: 22mm Pushbutton size: 11mm centres spaced at Cat. S-1904

SINGLE DPDT

Same high quality as the above switch bank, same features and functions. Just one of the above switches, Cat S-1906

10 or more \$1.95 each

PUSH BUTTON SWITCHES

SPST LAMPSWITCH

Has many, many uses but is ideally suited to replacement of desk light switches. 240V AC 2A

10 or more \$1.30 each

DPDT LAMPSWITCH

Double Pole version of above switch. Rated at 2A per pole, only slightly larger than single pole version. Suits same hole (11 mm), body size just 23 x 15 x 13 mm. 240V AC 2A/pole. Cat S-1210

10 or more \$1.80 each

ILLUMINTED SP MOMENTARY This switch features a beautiful red 11mm square actuating button in an all black plastic case. Makes an excellent mains

switch for projects. Features: 125v AC 1A (240V AC 0.5A) Body size: 18mm x 18mm

Clearance: 34mm Hole cut out size: 18.5mm x Indicator lamp: 6.3V Cat S-1078

10 or more \$2.40 each

MINIATURE SP-NORMALLY OPEN

These are all plastic body with red illuminated pushbutton bezel. To fit into your project just push into the right size hole and they will snap fit.

Features:

125V AC 1A (240V AC 0.5A) Body size: 28.5mm x 10mm Clearance: 15mm Hole size: 7mm Cat S-1102 10 or more 45¢ each



The Professional Miniature! Ideal for equipment where space is very limited. It features a positive push on/push off action. The actuating black plastic button is 10mm in diameter.

Features: 125V AC 3A (240V AC 1.5A) Body size: 11.5mm x 11.5mm Clearance: 22mm 10 or more \$2.50 each

DPDT MOMENTARY ACTION

This is an extremely high quality push-button switch featuring precise micro switch type action. The plastic actuator button is small to conserve space whereby you can stack these switches side by side etc. Ideal for computer program switch.

Features: 125V AC 3A Body size: 13mm x 13mm Clearance: 14.5mm Hole size: 6.5mm Cat S-1220

10 or more \$2.65 each



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SP MOMENTARY ACTION

This switch features a beautiful red 11mm square actuating button in an all black plastic case. Makes an excellent mains switch for projects. Cat. S-1198

Features; 125V AC 3A (240V AC 1A) Body size: 15mm square Clearance: 28mm Hole size: 12mm

Cat S-1198 10 or more \$1.45 each



SP ALTERNATE ACTION

As above switch, Cat S-1198, but with momentary action push/on Features: 125V AC 3A (240V AC 1A)

Body size: 15mm square Clearance: 28mm Hole size: 12mm at S-1199

10 or more \$1.45 each



PUSH BUTTON RED/BLUE

Red or blue mini push buttons - ideal for colour-coding control panels, etc. Each handles up to 0.5A at 240V AC (1A 125V) and are momentary action (on when pushed). Switch size 14mm square; take 11mm x 12.5mm mounting hole

BLUE: Cat S-1074 RED: Cat S-1076 10 or more \$1.35 each

\$ 4 50



DOOR BELL PUSH BUTTON

The kind the Avon Ladies love! Standard white/black push button to suit most types of low voltage door bells. Two screws mount to any flat surface. Cat S-1077

ILLUMINATED PUSH BUTTON Lamp 12V @ 55mA

As used in car burglar alarms, control panels, etc. Alternate action switch with inbuilt 12V globe. Square finish body, round mounting hole. Cat S-1520

125V AC 3A (240V AC 1A) \$695 Body size: 14mm square

Mounting hole: 12mm Clearance: 40mm 10 or more \$6.50 each

PACK OF 4 PUSH BUTTONS

Ideal for mounting on PCB's. These are momentary PUSH ON switches that have a positive click action. Ideal for alarm circuits intercoms, custom keyboards, etc Cat S-1200 10 or more \$2.30 each



ECONOMY STANDARD TOGGLE SWITCH

STANDARD SPST

A well designed switch in a bakelite case. It has a chrome toggle and is complete with two nuts and chrome ON/OFF indicator plate. Ideal for electric projects and automotive use.

Features: 125V AC 3A (240V AC 1.5A) Body size:14mm x 26mm Clearance: 20.5mm Mounting hole: 12mm Cat S-1215

10 or more \$1.10 each

STANDARD DPDT

Same general features as the above switch. Features: 125V AC 3A (240V AC 1.5A) Body size: 18mm x 29.5mm Clearance: 23mm

Mounting hole: 12mm at S-1216 10 or more \$1.35



STANDARD DPDT CENTRE OFF

Rugged bakelite case, chrome toggle, red and black ON/OFF/ON indicator plate and heavy duty solder lug terminals. This switch features heavy duty contact rating. Makes ideal motor reversing switch, e.g. electric aerial on cars.

125V AC 10A (240V AC 6A) Body size: 20mm x 35mm Clearance: 26mm Mounting hole: 12mm Cat S-1217

10 or more \$1.70 each



D.

PIANO KEY DPDT

Ideal for audio and electronic projects. Superbly engineered and has a white toggle.
Cat. S-1393

Features: 240V AC 3A Mounting hole: 18mm Clearance: approximately 15mm Body size: 20mm x 30mm Cat S-1393

10 or more \$3.20 each

ILLUMINATED SPST (12V)

Intended for automotive use. The soft glow from the toggle is not distractive, but means the switch can quickly be located. 12V lamp operates from supply being switched. Cat. S-1214

Features: 12V DC, 16A contacts 9mm mounting hole Body size: 28 x 15mm Cat S-1214

10 or more \$2.95 each

DPDT MOMENTARY ACTION

Double pole, double throw with spring loaded momentary contacts. Rated at 12V, 20A - ideal for car electric aerial switch. etc. Standard 9mm mounting hole

10 or more \$1.95 each







S SWITCHES SWITCHE

SLIDE SWITCHES

SUB MINIATURE DPDT

COUNTLESS APPLICATIONS - AMAZING LOW PRICE! Sub-miniature type suitable for many types of projects, etc. So low in price it can be used for experimental projects without regard to cost! Actuator is in black plastic.

Features: Mounting: 19mm centre Clearance: 12mm Body size: 8mm x 23mm Cat. S-2010

SUB MINIATURE DPDT



10 or more 35¢ each

Same as the S-2010 but features an attractive spun aluminium actuator with black insert. Cat. S-2020

10 or more 45¢ each **MINIATURE DPDT**

This miniature switch has a spun aluminium actuator with black insert. Larger and heavier duty than the sub-miniature range.

Mounting: 28mm centres Clearance: 14mm Body size: 35mm x 13mm Cat. S-2040



MINIATURE DP3T

versatile switch ideally suited to audio applications and for instruments. Features:

Mounting: 19mm centres Clearance: 13mm Body size: 8mm x 24mm Cat. S-2030



MINIATURE DP6T

A printed circuit board mounting switch with a massive six positions. Each position has a positive location to avoid

Features: Mounting: 27mm centres Clearance: 18mm Body size: 8mm x 33mm

Cat. S-2050 10 or more 80¢ each



MINIATURE SP4T

As above, but with four positions. Ideal for input selection on printed circuit boards.

Features:

Mounting: 19mm centres Clearance: 12mm Body size: 8mm x 25mm Cat. S-2060



4PDT TOGGLE LEVER ACTION

This switch gives the smooth action of a slide switch but is actuated by an attractive spun aluminium toggle with coloured insert. Great for amplifier changeover switches because of their small size and attractive finish
Features:

Mounting: 27mm centres Clearance: 19mm Body size: 9mm x 34mm Cat. S-1301

10 or more \$1.60 each

8 WAY PCB DIL SWITCH

8 SPST rocker switches mounted in a DIL package. Designed for PCB mounting and may be placed in blocks or rows without wasting space. Use for pre-programming, changing circuit constants and many more uses.



SPDT SLIDE

Designed for vertical mounting direct on pcb. Ideal for circuits which require occasional changing of operating parameters, 5mm between pins.

240V AC, 2A (6A @ 28V DC) Cat S-1010

10 or more \$1.45 each **DPDT SLIDE**

As above, but capable of switching two individual circuits at the same time. Also has 5mm between pins - in both directions. Has mountings at 18mm, body 13 x 11.5mm. Cat S-1015

10 or more \$1.25 each

DPDT 'KNIFE' SWITCH

The old 'aerial & earth' switches of Yore Used today for changeover switches on TV antennas, etc, or any general purpose (low voltage!!) switching job. Cat S-1930

(10 or more \$1.30 ea)

ROCKER SWITCHES

ILLUMINATED DPDT

Positive action, handsome black body, bright red illuminating rocker switches, 10 amp, 240V. The terminating lugs on this switch will accept standard utilux spade clips. Mounting is push in snap lock.

Features: 240V AC 10A Body size: 23mm x 30.5mm Clearance: 30mm

Hole cut out size: 22mm x

Cat S-1506 10 or more \$ 240V NEON \$3.40 each

12V LES 12V VERSION GLOBES As above, but 12V globe. \$
10 or more \$3.10

ILLUMINATED SPDT

Attractive rectangular shape black switch with red illuminating rocker (240V neon). Terminal lugs accept Utilux spade quick connectors. Mounting is 'snap lock'. 240V neon.

Features: 240V AC 124 Body size: 14mm x 40mm Clearance: 29.5mm Hole cut out size: 12.5mm x

37.5mm Cat. S-1503 10 or more \$2.95 each

SPST MINI ROCKER

Intended mainly for vehicle applications - has quick connect lugs for easy connection. Takes rectangular cut-out, 29 x 13mm. Push-to-fit.

Cat S-1390 240V AC, 0.5A 12V DC, 2B

10 or more 85¢ each

SPST ILLUMINATED WITH BRACKET

Also for car use. Ideal for controlling driving lamp relays, etc: lamp inside switch lights when switch is on. (12V lamp). Complete with mounting bracket (can be removed for panel mounting in a 12 x 27mm cut-out).

10 or more \$1.95 each

ROTARY SWITCHES

Dick Smith rotary switches are precision made to our exacting specifications. They feature easy-to-solder lugs (which can also be used for PCB mounting because of their small size); with up to 2 positions or 6 poles on one switch plate. The switch shaft is the now standard fluted 6mm type which accepts any of our standard metric range of knobs. (Imperial knobs can be used if required for matching purposes by means of a small piece of shim brass or copper, etc). Each comes with a matching washer **50** 10 or more \$1.30

POLES POSITIONS CAT No \$ S-6302 S-6303 S-6304 S-6305 5-6306

Body size: 30 x 25mm Shaft length: 15mm

SPDT PCB MOUNT 'PRESET'

Vertically mounting on pcb for preset applications. Insulated shaft makes it suitable for reasonably high voltage applications; very sure break before make. Cat S-1950

3-WAY BCD PUSH-BUTTON

3 ganged push button switches with BCD coded outputs: ideal for use in computer circuits, with PLL's, etc. Decimal reading of BCD setting. As used in 2m transceiver kit. Cat S-2065

(10 or more \$13.95 ea)

40 CHANNEL

CB SWITCH

As used in most Cyber-net CB radios. Binary coded output for PLL02A IC: the most commonly used PLL deal replacement part. Ideal replace Cat. S-6300



(10 or more \$12.50 each)

MICRO SWITCH

MICRO SWITCHES

Microswitches are used wherever a limited switching movement is required – they require only 2 or 3mm of blade movement to actuate. Very positive switching action when triggered – ideal for use in burglar alarms, machinery guards & limit switches, tamper switches, etc.

Features: SPDT contacts 240V DC 10A rating Body Size: 10.5mm x 28mm Quick connect terminals Cat. S-1920

10 or more \$1.60 each



MINI MICRO SWITCH

Tiny version of micro at left: just 20 x 10 x 6mm! SPDT contacts with mini quick connect terminals (just as easily soldered to!) Hole mounting 10mm apart. Actuator arm has curved end for cam or chain follower. Ideal for high quality

(10 or more 95¢ each)

ALARM SWITCH

LARGE BARE REED SWITCH

Bare switch measures 40 x 5mm diameter, solid connections for ease of soldering. Cat. L-5215 10 or more \$2.00 each

MINI REED SWITCH

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Great where space is a prob-

lem. Wire connections, great for camouflaging in woodwork, etc. 25mm long. Cat. S-1948

10 or more 95¢ each

ACTIVATING COIL

Matches perfectly with the mini reed switch above. 430 ohm coil operates from 6 to 15V DC, gives perfect isola-tion between two circuits (just like a relay!) Cat. S-1946 10 or more 50¢ each



BARE MAGNETS

Tiny (26 x 8 x 8mm) magnets which operates either reed switch from approx. 10mm away. Huge range of applications ations. Cat L-5214

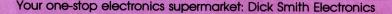
(10 or more \$1.40 each)

MERCURY 'TILT' SWITCH **SWITCH MOUNT SPDT**

This is essentially a movement detecting switch. It is operated by changing the horizontal plane. A 'ball' of mercury runs from one end of the elongated tube to the other as the position is changed. One end has a set of contacts that 'make' with the mercury. It is basically a low current device but is suitable for such uses as movement detectors for car or bike alarms. Cat. S-1935

10 or more \$1.30 each





CHOKES FILTERS & CABLES



10uH	L-1773	100uH	L-1795
15uH	L-1775	150uH	L-1799
22uH	L-1779	220uH	L-1803
33uH	L-1783	330uH	L-1807
47uH	L-1787	470uH	L-1811
68uH	L-1791	560uH	L-1813
82uH	L-1793	820uH	L-1817
ALL OF	THE ABOV	E VALUE	S AT \$1.00ed

10 up .90¢

	10 up
1 mH Cat. L-1820	\$1.50 \$1.35
1.5 mH Cat. L-1822	\$1.50\$1.35
2.5 mH Cat. L-1824	\$2.00\$1.80
5 mH Cat. L-1826	\$2.40\$2.20
10 mH Cat L-1830	\$2.50\$2.25

DC SMOOTHING CHOKE

Intended for car hi-fi, communications equipment, etc where ignition, alternator or other noise gets in through the power line.

Use external to device either on its own (in series with positive supply) or in conjunction with capacitor for an effective L-C filter.

RF BALUN KIT (& audio interference suppressor)

Contains a large, quality balun core (50.8mm dia.) with a quantity of heavy gauge wire, suitable for up to 1kW. Full instructions supplied. Can be used for a number of antenna types up to 30MHz. In most cases they will eliminate RF breakthrough from amateur and CB gear into audio amplifiers If the speaker leads are wound through the core (as many turns as will fit) the core stops RF energy entering the amplifier in this way. Cat D-5350.....



R.F. Toroid Kit

Contains two iron powder cores, enamelled copper wire, application notes, inductance chart and an LCF nomograph. Toroids are used to advantage in Tank circuits, Pinetworks, RF transformers, T-Networks, floating tanks, band pass filters, baluns, multiband tuners, antenna loading coils, RF traps. IF networks and oscillator tanks. The two cores provide a useful high Q spectral range of 1MHz through 60MHz.



Aerial Rod with Coil

Complete Ferrite rod with pre-wound standard b/c coil. Suits 140-160pF miniature tuning gangs. Ideal for replacements in transistor radios.

Cat. L-0520 \$1.50 10 up \$1.30 **Aerial Rods**

Approximately 194mm long, and 9mm

Cat. L-1401 \$2.70 10 up \$2.45

Telescopic Antenna

Deluxe antenna, ideal replacement for radios or use in projects. Multi section, tight fitting, chrome plated.

10 up \$4.45

Toroids and Beads

FX115 Ferrite beads Cat. L-1430 . . . **25¢ ea** 10 up **20¢** Philips bead 4312-020-31550 Cat L-1432 ... 60¢ ea 10 up 50¢



Ferrite Cores

Packet of 4 Ferrite cores type F16 Cat. L-1302 **pkt of 4 95**¢ 10 up **90¢** Packet of 4 Ferrite cores type F29 Cat. L-1307 pkt of 4 95¢ 10 up 90¢



1050/1/F14 (40 to 200MHz)
Cat. L-1340 pkt of 2 \$1.50 10 up \$1.35
1050/2/F29 (10MHz to 220MHz)
Cat. L-1352 pkt of 2 \$1.50 10 up \$1.35





75 OHM VIDEO LEAD

2m quality 750hm cable fitted with standard RCA plug one end and TV (co-ax) plug the other. For use with many types of VCR/TV combinations, also used in some wall outlet to TV applications. Cat W-1286



Approved 3 core 240V mains lead fitted with standard IEC line socket (as used on most computers, vcr's, transceivers, etc, etc) and Aussie 3-pin plug on other.

Cat W-1362



BNC/BNC VIDEO CABLE

2 metres quality 75 ohm coax fitted with BNC plugs at each end. Suits many of the VCR's available.Why make one and risk shorts when it's already done for you? Cat W-1285

CABLE SET

Own a video cassette? Want to dub tapes? You **must** have one these amazing cable sets. Doesn't matter what type: VHS, Beta, Umatic, Philips . . . this suits any to any! Comes with 2 metre audio/video cable with phono plugs on each end, plus adaptors to suit BNC, UHF (PL-259), DIN, phono, etc. Every video enthusiast should have one!



WIRING SYSTEM FOR **SPEAKERS**

What a bargain! 'Invisible' two-wire cable goes behind wallpaper, under carpets, along skirting boards, with as many sockets as you like for speakers. Now you can have your speakers wherever you want them without messy wires every where! Kit comes with 10 metres cable plus four plugs & sockets, and full instructions.

BULK BUY BARGAIN!

50 OHM CB COAX LEADS

Antenna 'Extension' Lead 1m 50 ohm RG58U co-ax fitted with PL-259 connectors at each end, Ideal for extending CB or HF/VHF amateur transceiver leads to allow antenna to be mounted further away. Cat W-1370



Antenna Lead

Similar to above, but fitted with PL-259 plug one end and lugs on other for connection to the contract of CP/c tion to a variety of CB/amateur 4m long. Cat W-1372

UNIVERSAL MAINS LEAD

Approved mains cable as used Approved mains cable as used in a huge variety of imported audio, radio, video and other entertainment equipment. Two pin mains plug, approx. 2 metres cable and 'figure 8' type two-pin socket. Note: no earth lead! Ideal replacement cable. Cat W-1360 \$350



2 metres very flexible microphone cable, with 3 conductors plus shield. The ends of the conductors are pretinned and the whole cable is pre-coiled for easy use. Ideal for replacing microphone and headphone cables with appropriate

sockets. Cat W-1365



UHF **HELICAL FILTERS**

High quality UHF Helical Filters (also known as helical resonators) - as used in our UHF amateur transceiver kit.

They're miniature low impedance bandpass filters, specifically made for either the UHF amateur band (centre 440MHz) or the UHF CB band (centre 477MHz). Incredibly handy because it's so diffi-cult to wind your own coils for these frequencies: all the hard work is done for you.

Specifications (similar for each except for centre frequency)

Bandwidth: 12MHz min (at -1dB) Selectivity: 12dB min (Fo+/-30MHz) Insertion Loss: 3dB max Impedance: 50 ohms in and out

Size: 15 x 13 x 7mm

10 up \$7.25 440 MHz Cat L-1850 477 MHz Cat L-1860

Pot Core Assemblies



Philips P36 assembly consisting of 2 cup cores and former. Replaces FX2242 and is ideal for the CDI kit. 36mm core

Cat. L-1436												4	\$6	5.1	5	0	
						•	1	0	u	p)	4	\$6	5.	0	0	

Former to suit FX2242 core Cat. L-1437......60¢ 10 up 55¢

Slug Tuned IF/ **OSC Coil Pack**

Ideal for experimenters and service technicians. Set comprises 1st, 2nd and 3rd 455kHz standard miniature IF transformers and standard b/c oscillator coil.

\$1.90 Cat. L-0260 10 up \$1.70



Coil Formers & **Accessories**

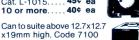
5mm former, subminiature (4mm

Code 722/1

Cat. L-1010 1-9 45¢ ea 10 or more...... 40¢ ea

6 pin base.

Cat. L-1015..... 45¢ ea 10 or more.... 40¢ ea



x19mm high. Code 7100 Cat. L-1020 45¢ ea 10 or more 40¢ ea



455kHz **Ceramic Filter**

SFD455B (SF455D) the modern replacement of the IF transformer. Two resonators are coupled by an external capacitance to give maximum selectivity with a flat response. Typical selectivity 20dB min at \pm 10kHz with 3dB bandwidth of \pm 4.5kHz.

Cat. L-1605 1.9	\$2.20	ea
10 or more	\$2.00	ea

WIRE & CABLE

HOOK-UP WIRE



FLEXIBLE LIGHT CABLE

100m or more 8¢/m

PVC insulated wire that is ideal for the hobbyist Ideal for home brew projects etc. 12 individual colours available - saves confusion.

W-2220 Red W-2224 Yellow W-2228 Lt Blue W-2221 Black W-2225 Green W-2229 Grey W-2222 Brown W-2226 D Blue W-2230 Cream W-2223 Orange W-2227 Purple W-2231 White



MEDIUM DUTY

15¢/m 100m or more 12¢/m

Slightly thicker than the above wires, fully tinned and insulated. Available in Red and Black. **Red** Cat W-2240 **Black** Cat W-2242



HEAVY DUTY

20¢/m 100m or more 17¢/m

24 x 0.2mm (23/.0076). Rated at 240V AC. 7.5 amps. Available in red, black and green. Red Cat W-2260 Black Cat W-2262 Green Cat W-2264



ULTRA HEAVY DUTY

30¢/m 100m or more 25¢/m

32 x 0.2mm (40/.0076). Rated at 240V AC, 10 amps. Available in brown and blue Brown Cat W-2280 Blue Cat W-2282

RAINBOW CABLE



Cat W-2045 \$1.45/m 100m or more \$1.25/m

12 colour coded strands of insulated conductor looms or intercoms etc. Can be laid under carnets. Can be split and the individual wires ed - same rating as W-2220 series of wire

TELEPHONE-TYPE CABLE



CONDUCTOR CONDUCTOR

Cat W-2120 65¢/m Cat W-2140 \$1.20/m 100m or more 55¢/m 100m or more 95¢/m

This is the type of wire used by TELECOM Australia for internal telephone wiring, Ideal for intercoms or any other multi-wire circuit. Individually insulated and colour coded. Solid copper conductors, fully tinned for solder connection or good screw connection.

SPEAKER CABLE



LIGHT DUTY

Cat W-2010 20¢/m 100m or more 15¢/m

Ideal cable for use with Hi Fi systems for speaker connections or with intercoms. Twin plastic insulated conductors, insulation marked with a trace to keep speakers correctly



MEDIUM DUTY

Cat W-2012 25¢/m 100m or more 20¢/m

Ideal cable for connecting speakers to systems of up to 200 watts power. Heavy duty with low resistance for long runs with very low power loss. Colour coded for polarity reference. Conductors 14/.0076.



MAINS RATED

Cat W-2020 40¢/m 100m or more 30¢/m

Ideal for use with extension lights, standard intercoms if a lower resistance is required.

Rated at 240V AC, 7.5A. With white PVC

SHIELDED AUDIO COAXIAL CABLE 75 Ω 3C-2V CABLE

MONO LIGHT DUTY

Cat W-2030

PVC covered, light duty, very flexible cable that is ideal for patch cords, small microphones, etc. Colour - Grey.



TWIN SHIELDED

Cat W-2034 55¢/m 100m or more 50¢/m

2 PVC covered twin shielded conductors. Ideal for microphones, audio patch leads, hook-up wiring, etc. Flexible, light duty. Colour coded.



TWIN SHIELDED

Cat W-2036 60¢/m 100m or more 55¢/m

The same as the single conductor audio lead but with two conductors separately shielded in fig. 8 pattern insulation. Ideal for stereo connections Colour - Grey



HEAVY DUTY TWIN

Cat W-2037

Two conductors individually shielded and colour coded surrounded by a heavy duty outer insulation sheath. Ideal for use where heavy handling could destroy light duty cables i.e. rock groups etc.



All 4 conductors are individually shielded and covered by grey PVC insulation. Ideal for use with stereo systems that have DIN



3-CORE FLEX

3 CORE **MAINS**

W-2756

CABLE Cat W-2055 60¢/m

100m or more 50¢/m A standard power cable for use where an earth

is required. Each wire is separately insulated and colour coded and all three cables are contained in a plastic sleeve to give double

Rated at 240V AC and 7.5 amps continuous.



CORD

Cat W-2057 10 or more

12m 7.5A 3 core flex fitted with 3-pin plug on end: ideal for all mains projects



Cat W-2080 45¢/m 100m or more 40¢/m

Designed for TV feeder systems. Cable has excellent dielectric and is suitable for up to 400MHz. It has a 5mm diameter black insulation over braided shield.



50 Ω RG-58 **AMATEUR**

Cat W-2090 60¢/m 100m or more 50¢/m

For use up to 500MHz making it ideal for the marine radio installation, CB radio, amateur and two-way radio. Flexible with stranded centre conductor and black insulation. Diameter 5mm



50 Ω RG-8 **HEAVY DUTY**

Cat W-2095 \$2.25/m 100m or more \$1.95/m

Ideal for long run feeder systems due to its very low loss. Ensures maximum operating of transmitters. Insulation coloured black and has a 10mm diameter



50 Ω RG-213 LOW LOSS

Cat W-2099 \$2.65/m 100m or more \$2.20

For when you want lowest loss (eg long runs) without going to the expense of heliax or similar. RG-213 offers better performance at VHF & UHF than RG-8.



RG-178 MINI 50 OHM **TEFLON** 1 metre pack

Able to handle up to 100 watts at 500MHz due to the Teflon insulation, this also means you can solder directly to the shield braid without melting the insulation. Incredibly small diameter, only 2.5mml Ideal for wiring into transmitters etc., where space is a premium. High quality. Cat W-2088

TV RIBBON



300 OHM FEEDER

Cat W-2070 22¢/m 100m or more 19¢/m

Suitable for indoor or outdoor use. (Black). 300 ohm feeder ribbon for connecting aerials to TV sets - low loss and maintains perfect balance.

4-CORE FLEX



Cat W-2100 85¢/m 100m or more 75¢/m

Intended mainly for alarm applications where two conductors are used for alarm sensing and two for tamper protection or power supply, ect. Each conductor is 7/020, and individually insulated. Most alarm installations use between 50 & 100m.

6-CORE FLEX



Cat W-2042 \$2.50/m 100m or more \$2.25

Intended mainly for older style rotators which require up to six conductors; also ideal for alarm installations requiring power, tamper and alarm connections.

WIRE PACKS: The economical way to buy

HOOK-UP WIRE PACK

24 metres in total of 12 different colours (that's 2 metres of each colour) of the 10 x 0.2mm hook-up wire. Ideal for the hobbyist,

RESISTANCE WIRE PACK

Resistance wire suitable for the construction of wire wound resistors, small heater elements, shunts, etc. Also ideal for emitter resistors in high power

ampliners.
Wire size: 288&S (diameter 0.32mm).
Solderable – yes. Resistance 1.852
ohms/ft. Non magnetic, corrosion resistant. Composition: 45% Nickel, 55%
Copper. Maximum continuous service temperature: 540 degrees Celsius.
Cat W-3200 ... 4 metre length ... 90¢

INSTRUMENT TEST LEAD WIRE PACK

Special 512 strand (YES 512I) very flexible wire that is ideal for test leads or for connection to something that is moving. Very low resistance and only 3mm in diameter. Expensive – yes, but it will last for years. Pack contains 2 metres each of red and blezk 4/ metres tests.

and black (4 metres total) Cat W-4016 ... 4 metre pack ... \$4.50

SPAGHETTI PACK



Contains 30 lengths of assorted colours and diameters (each length being more than 150mm), that totals over 4.5 metres of spaghetti. Cat W-4040

WIRE WRAPPING PACK

This is a high quality insulated IC wrapping wire now in a convenient 5 metre pack – keep a couple of packs handy, you never know when you may need it! Cat W-4018 5 metre pack

HEATSHRINK TUBING PACK



Make professional terminations. Supplied as a pack of various lengths and sizes and includes (internal diameter) 1.5mm, 2.8mm, 6.3mm, 12.7mm and 19mm. On application of heat from a soldering iron or hair dryer wil shrink up to 50% of original size. Retains flexibility after heans shrink, Ideal es 'strain'. flexibility after being shrunk, Ideal as 'strain' cord on made up leads.

Jumbo pack for those long jobs. Contains 4 lengths: Clear 15mm, Blue 10mm, Yellow 7mm, White 5mm, each 1m long. Fantastic value! Cat W-4062 \$8.25

TINNED COPPER WIRE

High quality 25 gram roll of 22 SWG (approx 20 B&S) tinned copper wire. Ideal for PC board links, hard wire jumper leads, chassis wiring, etc. 0.71mm x 8 metres to a roll. wiring, etc. U./ Immi x o metres to a roin. Cat W-3022... approx.8 metres... \$2.20

ENAMELLED WINDING WIRE

Coil winding, motor rewinding, transformer building are no longer a problem with these handy coils of enamelled wire.

NOTE: where possible this wire will be supplied with "Bicaflux" insulation. Simply heat wire with a soldering iron and insulation will flow therefore requiring no stripping.

Gauge B&S	mm	Gauge SWG	Length metres	Nett weight	Cat No	Price
16	1.25	18	8m	100g	W-3116	\$2.95
18	1.0	19	12m	100g	W-3118	\$2.95
20	0.8	21	18m	100g	W-3120	\$2.95
22	0.63	23	24m	100g	W-3122	\$2.95
24	0.5	25	9m	25g	W-3124	\$2.25
26	0.4	27	20m	25g	W-3126	\$2.25
30	0.25	33	50m	25g	W-3130	\$2.25
32	0.2	36	170m	25g	W-3132	\$2.25
36	.125	40	220m	25g	W-3136	\$2.25

FUSE WIRE

Great for keeping a card of in the fuse box - just in case! Card of 5, 10 and 15 amp fuse wire. Cat W-3180

TRANSFORMERS



Primary: Secondary Voltage: Secondary Current: Cat M-2824

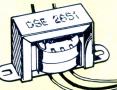
240V. 50Hz 3.5-0-3.5V & 7.5V 250mA & 10mA Flying Leads



DSE2840 10 up \$3.45

> Primary: Secondary Voltage: Secondary Current: Terminations: Cat M-2840

4.5-0-4.5V 150mA Flying Leads



ENERGY AUTHORITY CERT. NO. CS2204N

10 up \$3.40

DSE2851

Secondary Voltage: Secondary Current: Terminations:

240V, 50Hz 6.3-0-6.3V Flying leads



Primary: Secondary Voltage: Secondary Current: Terminations:

240V, 50Hz 6.3, 7.5, 8.5, 9.5, 12 & 15V Flying Leads



ENERGY AUTHORITY CERT.NO. CS2205N

10 up \$8.05

DSE6672

Tapped Secondary Voltages: Secondary Current: Termination: Cat M-6672

240V AC 15, 17.5, 20, 24 27.5, 30 volts 1 Amp Solder Lugs

Energy Authority Fully Approved

Low cost Low profile

Each transformer has two separate secondary windings which can be wired in series or in parallel. They are fitted with round pin terminations and include connectors.



PL12/20VA 2 x 6V@1.7A - 6V@3.4A - 12V@1.7A M-3596 PL15/20VA 2 x 7.5@1.3A - 7.5V@2.6A - 15V@1.3A M-3597 PL18/20VA 2 x 9V@1.1A - 9V@2.2A - 18V@1.1A M-3598 PL24/20VA 2 x 12V@.85A - 12V@1.7A - 24V@.85A M-3599 PL30/20VA 2 x 15V@.69A - 15V@.1.3A - 30V@.69A M-3600 PL40/20VA 2 x 20V@.51A - 20V@1A - 40V@.51A M-3601

all models only

Fantastic value! \$4 950 ea

PCB Mounting Transformers

 Mounts directly onto the PCB which makes wiring incredibly simple.

 Two separate secondary wirings - can be series or parallel connecrted. • Gives 24 volts at 0.21 amp in series or 12 volts at 0.42 amp in parallel. • Great for hobbyists! Cat M-3590

750

10 up \$11.25

115V stepdown transformer for US small appliances



Input 240V AC and secondary voltage 115V AC @ 60VA with 7% regulation. The unit is fully encased and has fuse protection for the output. Heavy duty carrying handle and socket outlet. Weight 2.9kg.

Why take the risk? Over – voltage transformer



Using 220V equipment on the 240V mains can be dangerous! Or in remote areas (particularly WA!) where mains can go up to 260V, even some 240V equipment is

Fix the problem with this mains auto transformer. 10% mains voltage reduction, at 240W. Ideal for VCR's! Cat M-1150

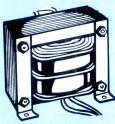


10 up \$27.50

DSE0144

Primary: Secondary: Secondary current: Cat M-0144

240V AC 28-0-28V 2A



10 up \$22.00

DSE2000

Primary: Secondary Voltage: Termination: Cat M-2000

240V AC 18 volts @ 6A Flying Leads



10 up \$45.00

DSE2010

Massive 18 volts at 14 amps continuous ... ideal for high power rating power supplies, linear amplifiers, etc. etc. Compare our price with what you've had to pay in the past . . . What a bargain!

Suits 13.8V 25A pk supplies.

As used in our VK powermaster kit.

Transistor Audio Transformers

Ideal for transistor radio replacements, good for transistor projects including oscillator circuits, coupling transformers. Miniature size. Model M-0222 - Primary 3k ohm ● Secondary 3k ohm ● Use - Coupling ● Iron Core ● Size 17(I) x 15.5(w) x 15(h) mm.

Model M-0216 - Primary 1k ohm ● Secondary 8 ohm ● Use - 350MW.O/P. ● Ferrite Core ● Size 15(l) x 14(w) x 11.5(h) mm.

Audio Line Transformer

This transformer has been engineered to cover more than 95% of all PA - BGM applications. Suited to all speaker impedances. Multitapped for use with 100V or 70V lines. 52mm mounting centres.

Multi purpose matching transformer ● 4 Watts rms rating
 ●2, 4, 8, 16 ohm secondary ● 2.5K, 5K ohms primary
 Cat. M-1100



POWER SUPPLIES & PLUG PACKS

Power Supplies 13.8V/4A Peak

Panther Power! Regulated 13.8 volts supply, ideal for running CB radios as a base station...or any other 'car' equipment from a power point, Makes a great bench supply for test purposes, too. 2 amps continuous rated, with a massive 4 amps peak pulse (suits SSB CB's perfectly). Fully approved supply, with colour coded banana terminals and 2 metres mains cable. Cat M-9545.



- Housed in high-impact plastic case with massive ventilation for long service.
- Rubber feet to keep stable, eliminate scratching.



Need more comph? Try this one: the high power Panther. For the 2m or small HF amateur transceiver, a supply for 'auto' equipment, even a bench supply for service work

 you'll go a long way to find a better supply.
 With a 3 amp continuous (or 4A continuous at 75% duty cycle!) and a huge 8 amp instantaneous peak rating, it's ideal for those higher current and higher peak demand applications that the above suppy can't manage.

- Heavily heatsunk for maximum output
- Colour coded output terminals

LED indicator also shows overload or short circuit.

3-6-9-12V DC @



Invaluable around the home or workshop. It will give a maximum of 1 amp at 3, 6, 9 and 12 volts DC. Simply plugs into 240V AC power socket - DC connections via screw terminals on front of unit. Ideal for use with alarm systems, intercoms, etc.

- Overload protection
- Simple screw terminal
 - connection
- **High 1A output**

Protect your computer system with a

Jabel Line Filter

Spikes, spurgles and sundry other garbage on the mains can spell disaster for your poor computer. Even separate sections of the computer can cause mains hash (eg printer). This deluxe filter virtually eliminates most mains-borne garbage giving your computer a clean line of supply with which to operate. If you're having 'crash' problems with your omputer - could be this filter will fix it!Rated at 240 volts, 2 amps. Fully approved by the Electricity Authority.



Don't delay! It's only

Wow! Save on batterypower with a super-quality **DSE Plug Pack!**

We've one to suit almost all equipment ... so switch over to mains power today!



3V-6V-9V DC @ 200mA

most superb buys in this catalogue many thousands have been purchased by people who know how to save money! is a small plug-in unit that has three output voltages of 3, 6 and 9 volts DC at 200 milliamps - possibly the three most used voltages on battery powered equip-ment. It is ideal for many battery driven items. Cat M-9525



7.5-9-12V @ 300mA

An extremely versatile supply ready for just about any application. Switchable output gives 6 different voltages ranging from 3V to 12V, at up to 300mA Complete with 5-way connector to suit almost all power sockets in common usage (including 9V battery connectors). Cat M-9526



AC @ 500mA

Ideal power supply for projects that require 12V AC at 500mA Because the whole of the plug-pack is a transformer, you get a much higher current rating than other plug-packs. Rectifiers and filter components can be placed inside the project itself.





DC @ 600mA

Extra high power - ideal for 9 volt equipment which needs more than the low power-plug packs can provide, (such as Cat M-9560



DC @ 200mA

For all equipment requiring 9V DC at a 9V transistor type battery or many other static hobby models that require 9V. Eliminator module simply plugs into a 240V AC power socket. Cat M-9514

BATTERIES & CHARGERS

Hi-Watt Batteries



see the huge savings on quality Hi-Watt batteries from Dick Smith! Specially imported, factory fresh batteries

- just right for all your battery operated devices. And they're available in all popular sizes and styles - right down to the tiny AAA and UM-5 sizes often so

Because of our huge turnover of batteries they're always in the freshest possible condition. Next time you need a battery try Hi-Watts!

Qty/type	Cat No		Price 10 up
'D' metal jacket	S-3001		40¢
'C' metal jacket	S-3002	40¢	35¢
'AA' (penlight)	S-3003	35¢	30¢
'AAA'	S-3004	40¢	35¢
UM5 (R-11)	S-3005		25¢
216 (9V)	S-3006	85¢	80¢

The battery bargain! Alkaline batteries last a lot longer than ordinary types . . . but you've had to pay the earth for them. Dick Smith Alkaline Longlite batteries last like the others . . . but look at the difference in price!

DSE Alkaline Longlife

Made especially for Dick Smith by one of Japan's leading battery manufacturers. Pack of two 'AA' size.

Cat S-3281

10 or more packs \$1.95 pack



Top Name EVEREADY...

Eveready Red batteries in 5 types. How's your lantern battery?

Qty/ty	ре	Cat No.	Price Each	Price 10 up
216	9V	S-3106	\$1.63	\$1.40
276P	9V	S-3210	\$8.49	\$7.80
2362	9V	S-3200	\$8.22	\$7.50
509	6V	S-3240	\$4.20	\$3.90
732	12V	S-3242	\$14.99	\$13.10



Top brand name, top quality! Eveready Alkaline Energizers, recommended for extra heavy duty applications where normal batteries turn up their toes. All normal sizes available; always guaranteed fresh and ever ready

Qty/type	Cat No.	Price Each	Price 10 up
Pack 2 'AAA'	S-3278	\$3.55	\$3.25
Pack 2 'C'	S-3282	\$3.80	\$3.55
Pack 2 'D'	S-3284	\$4.40	\$3.70
1 x 216 (9V)	S-3286	\$4.70	\$4.45



HIGH POWER

This one will get you going - fast. With a high 4A charge rate it will completely

charge a dead battery overnight; it could get you going in much less time.

Complete with charge meter so you won't overcharge the battery. Top value!

CHARGER

Ni Cad Batteries

'AAA' size

At last, you can get 'AAA' re-chargeables! Now all those toys, calculators, etc using this popular size can benefit from the much lower overall cost of Nicads. 1.2

225 volts, 180mAh rating. Cat S-3305

10 up \$2.10

'AA' (penlight) size

By far our most popular NiCad by lar our most popular Nicau cell - we sell almost as many of these as ordinary AA batteries! Qespite their initial higher price! NiCads work out much cheaper in the long run because they can be re-charged up to 200 times! Rated at a massive 500mA/h, this battery is suitable for almost all devices using standard AA batteries 1.2 volts.

\$200 Cat S-3300 10 up \$1.80 'C' size

Use to replace standard 'C' size batteries. Higher capacity (1.2Ah) for longer use. Single cell.

\$**525** Cat S-3301 10 up \$4.70

'D' Size

Also rated at 1.2Ah but has same physical size as standard 'D' battery. Used in models, toys, etc.

\$**525** Cat S-3303 10 up \$4.70

'216' Size

At last! A true 9V NiCad in the popular '216' (transistor radio) size. Don't be fooled by most models: they're really 7.2V! This one gives full output! 100mA rating. Cat S-3308



\$**4 8**95

10 up \$17.00

No leak, rechargeable **Gel Cells**

Cat S-3320

12V 2.6 Ah

12 V 1.2 Ah

Now there's no need to mess around with motorcycle or other batteries for your burglar alarms, emergency supplies, etc etc. You get all the advantage of conventional lead-acid batteries - high output, etc - with virtually none of the hassles. No leaks, no mess.

A mini Gel Cell intended mainly for alarm applications (fits inside alarm cases nicely) with enough oomph for most applications. Colour-coded spade connectors for easy connection, size 100 x 45 x 55mm. As used in EA Home Burglar Alarm kit.

Rated at 12V, 2.6Ah. Keep it trickle charged via the alarm or other mains supply (ask us for a circuit!) Fits perfectly inside our 'Security Centre' (see alarm pages). Measures 135 x 95 x 35mm, fitted with quick connect terminals.



WATCH **BATTERIES**

Equivalent Guide

your watch/clock

	JIS	Eveready			
Cat S-3292 \$3.4		389	10L12	S-120	
Cat S-3293 \$4.5	60 G13	S76	10L14	S-200	
		303			
		357			
Cat S-3295 \$3.2	25 G12	386	10L24	S-150	
		S41			
Cat S-3296 \$2.4		391	10L130		
Cat S-3299 \$2 4	In G3	392	101 125	S3-140	

S312

CALCULATOR BATTERIES

3 volt Lithium calculator batteries in two popular sizes. Suit a large range of s tific and statistical calculators. Blister packed for freshness.

E-CR2025 Cat S-3330 E-CR2032 Cat S-3331

CHARGETTE

The experts tell you to charge your battery 'a little, but often' for maximum life. This Chargette does just that with a 1A trickle charge that will keep your car battery always ready. Plugs directly into power point, complete with leads and clips. Cat M-9802

Keep your car battery fresh!





Cat M-9800

NI CAD CHARGER

Most devices these days allow for an external charger to be plugged in to charge NiCads (usually a 2.5mm socket). This charger is ideal for all NiCad packs from 6 to 10 cells (ie 7.2 to 12 volts). Fully approved by Electricity Authority.



CHARGING

Can't charge NiCads inside the device? No problems: this incredibly versatile charging cabinet suits virtually all sizes and types of NiCad cell. Has a test meter to indicate charge and 5 LED indicators to show batteries are connected. Fully approved, complete with plug-pack. Cat M-9519



CHARGER PLUG PACK.

What a great idea! Two - part charger consists of plug pack plus a separate snap - on battery holder. Charges four penlight (AA) Nicads easily and simply. Cat M-9520



MAINS PRODUCTS, FUSES ETC.

3 PIN PLUG \$430

Cat P-5400

The standard Australian 3-pin AC plug - it has locking collar to hold cable tight and push fit cover to main body.

3 PIN PIGGY-**BACK PLUG**

Standard 3-pin plug with 3 pin socket as well - doubles up one power point. Cat P-5405

3 PIN PLUG -SIDE ENTRY



SUPPRESSOR PLUG \$635

Cat P-5425 Standard 3 pin AC plug, with capacitors

fitted to reduce unwanted pops and crackles from audio equipment. LINE SOCKET

Ideal for making up extension cords standard 3 pin AC socket.

SURFACE SOCKET 250 Cat P-5415

Standard 3 pin AC socket that can be screwed to boards or walls - ideal for workshop use.

DOUBLE POWER POINT 10A RATING

Replace old single

BLANK

PLATE

\$495

outlets with a double much more convenient! Cat P-5560



Same size as power point, but blank: ideal for gap-filling when you move points, switches etc. Cat P-5535

STANDARD MOUNTING

Cat P-5531 \$ 4 95 Mount power points, plates, etc on any surface including brick.

WALL BOARD Can be from the front. 95¢ Mount power outlets, switch plates, on any cavity wall (other than brick) without the need for a mounting box. 3 PIN IEC LINE PLUG

As used in huge range of computer, amateur, entertainment equipment. Female line socket, standard IEC pattern.

3 PIN IEC CHASSIS SOCKET

Male chassis socket, as used with above plug. 3 pin vertical IEC pattern. Cat P-5585

ARCHITRAVE SWITCH \$350

Standard architrave switch - can be used to replace old, worn out units in your home. Positive action switching.

LINE SWITCH

High impact plastic moulded switch for insertion in any cord for remote on/off. Ideal for putting on/off switch in a floor standing lamp. Cat P-5515

JUNCTION BOX

\$ 330

Standard electrical wiring junction box with connectors.

LIGHT SOCKET \$475

Cat P-5510 Light socket for bayonet mount lamps.

Ideal replacement for light fittings. Comes in white plastic.

SPOTLIGHT HOLDER

Edison Screw holder to suit Can be adjusted over 30 degrees for exact positioning. (Suits coloured bulbs). \$ 6 25 Cat P-5620

POWER POINT 0 SAFETY TESTER \$495 Cat. P-5300

Check newly installed power points, old homes, etc. Just plug in and light pattern reveals any faults.

DOUBLE ADAPTOR

Standard 3 pin AC plug into 2 AC sockets enabling you to use 2 appliances on one outlet. Cat P-5440

EXTENTION CORD \$ 425

3 metres of 3 core cable, already fitted with plug and socket, 7.5A rating.



Wide range of fuses in both popular styles: M-205 mini (approx 20 x 5mm) and the popular 3AG (app. 32x6mm). Remember, the lower the current rating of the fuse you use, the greater the protection afforded.

All fuses 'fast blow' type for greatest protection.



10 up of any one type 20¢ each

THERMAL FUSES \$ Handle 10A at 250V. Two types to choose from:

96°C operating Cat S-4490 139°C operating Cat S-449

WIRE PACK

Great for keeping a card of in the fuse box - just in case! Card of 5. 10 and 15 amp fuse

100mA 150mA 250mA S-4455 350mA 500mA 1A 1.5A S-4457

S-4457 S-4461 S-4465 S-4467 S-4471 S-4473 S-4475 S-4477 S-4479 S-4481 S-4485 7.5A 10A 30A 35A

M-205 TYPE

S-4412 S-4415 S-4421 S-4423 S-4425 250mA 500mA 400

FOR LIGHTS

SUPER-HEAT

FUSE WIRE

GHEST QUALIT

15 AMPS FOR POWER

more 90¢)

HANDY FUSE

wire. Cat W-3180

Now one power point becomes four power

points! Just plug in this four-way adaptor

and you've solved all those dangerous double adaptor problems. And you don't

have to pay for an electrician to fit a new

point, Complete with cable, Cat P-5613

FUSE HOLDERS Chassis or PCB fuse 40¢ holders

Cat S-4258 (10 or more 30¢)

Easy to mount fuseholders in both popular sizes to suit 3AG or M205 fuses. Suit 3AG: Cat S-4257 Suit M205:

Bayonet holders (3AG)

(10 up 85¢)

Chassis or panel mounting fuse holder, accepts standard 3AG fuse. 13mm mounting hole required. Cat S-4206

In-line Holders (3AG)

Protection for car radios, stereos, transceivers, etc. All plastic casing, takes standard 3AG fuse, with spring loaded contacts for positive connection.

Complete with 600mm lead at no extra charge. Cat S-4277 (10 or more 90¢)

3AG Fuse clips (Pack of 8)

These fuse clips are ideal for mounting on PC boards providing flexibility and extremely good value. Cat H-1700 **95**

LIGHT DIMMER

Easy to install light dimmer Easy to install light dimmer - simply replaces existing light switch in wall cavity. Set the mood you want by the amount of light in the room. AND you can save on power bills, too. This dimmer comes with full instructions for easy installation: is already fitted with internal radio frequency. with internal radio frequency suppression to reduce or eliminate interference. Handles up to 500 watts of incandescent lamps (not suitable for fluorescents).



CHILD-PROOF PROTECTOR

AC sockets are normally placed in a position whereby young children have access. Stop their prying fingers by placing these plastic safety plugs into the outlet when not in use. Very hard for children to remove. Cat P-5420

LUMI-TAB LUMINOUS ADHESIVE TABS

Can't find that switch or power point in the dark? Try these: 'Lumi tabs' glow in the dark, put them around the switch etc and you

won't lose it! Pack 4 self adhesive tabs.

Cat P-5350



FOR 85 INTERNATIONAL TRAVELLER'S MAIN SOCKET ADAPTOR

Having trouble with power points overseas? Here's the answer! A neat little adaptor that converts our 3-pin plug to virtually anything used in the world. One piece (so you won't lose bits!). Uses active/neutral pins only: does not connect earth.

Cat P-5652

N.B. does not adapt voltage!!!!

SUPER VALUE AT

\$4695



superb rotary fans: FANtastic for any device that needs forced air cooling. And they can be mounted to suck or blow. Standard size: 120mm square x 40mm deep, with mounting holes on 75mm radius. The same Cat Y-8500 fan as you'd pay \$\$\$ more for elsewhere!

MINI ROTARY FAN

For those small devices which simply cannot fit the larger fan above. Complete with finger guard, can be installed for suck or blow. 240V motor, draws just 60mAl And the size is as tiny as the price: 80 x 80 x 25mm. Mounting holes on 51mm radius.

(5 up \$19.95)

AMAZINGLY TINY!

> (5 up \$19.95) Cat Y-8505

PCB'S & ACCESSORIES



ETCHING KIT

ncredible value: a pack consisting of Ferric Chloride, Dalo PC pen, resin (flux), a sample of PC board plus instructions - at less than the price of the etchant and pen on their own! And the Ferric comes in this handy 500ml bottle.

Cat H-5650.....\$8.90



EXPERIMENTERS PCB KIT

Complete with 150 x 100mm blank board, detailed instruction manual, template, chemicals and tools. This fully imported set comes in a plastic case which can be used as an etching tray.



At last a can of flux remover. Fantastic for service work, technicians and for cleaning up messy solder jobs! 400 gram spray can

PC RESIST PEN

for that 'one off' board where the complexity or expense of photographic processes are not warranted. Pen contains a resist solution which is simply drawn onto the PCB in the pattern required. Board is then etched in normal way. It's quick and it's easy! Famous 'Dalo' brand as used by

ALUMINIUM SHEET

BLANK PRINTED CIRCUIT BOARDS

heavy duty fibreglass.

work. 18 gauge:

Pre-cut high quality PC boards with permanently bonded copper on one side - available in bakelite of

Blank aluminium sheet ideal for making up front panels, folding into small boxes, or general hobbyist

Cat H-2560 305x305mm \$3.45

1 up 10 up

AMI-CAL

CLEAR ACRYLIC SHEET Ideal for using over panels, etc – makes your project look really professional. Or use for inspection panels, protection devices, etc. 3mm thick, size is a very useful 150mm long x 50mm wide.

Cat H-5450 10 up\$1.00 **PANEL LETTERING SET**

Each pack contains hundreds of words, letters, numbers and symbols for quick easy labelling of electronic equipment. These are transfer

SPOT FACE CUTTER



circuit board and Vero boards.

Cat. H-5176..... \$3.95 ea

CONNECTORS

Fits the H-5590 board pins. Has many uses. Cat. H-5592 Pkt 25 ... \$1.65 pack

PRINTED MOUNTING

H-6610 A handy 47 way mounting strip for resistors, capacitors and other components. Packs them in neatly. Terminals are numbered for easy circuit identification.

Cat. H-6610 10 \$1.90 ea 10 up \$1.70 ea

VERSA STRIP BOARD

2.54mm spacing x 76mm x 153mm

As H-5612 board, but with pre-cut short tracks making it ideal for multi IC work. Plated strips. Packed

strips are predrilled and plated ready for solder. The

strps are predrilled and plated ready for solder. The alpha numeric grid facilitates positive pin identification. **2.54mm spacing x 76mm x 153mm**Cat. H-5612 \$\frac{3.65}{3.65} \text{ eq} \text{ eq} \text{ 10 up \$3.30 eq}

2.54mm spacing x 76mm x 76mm \$1.90 eq

A quality plated copper strip board similar to the English Veroboard. Continuous predrilled stripping on a high grade insulator. Packed in plastic sheath to

2.54mm spacing x 95mm x 304mm

you an untarnished, easy-to-solder surface.

H-5612

. \$3.95 ea

10 up \$3.50 ea

10 up \$1.70 ea

\$5.45 ea

PC PINS

These pins push through 2.54mm pitch matrix board Veroboard to form solder terminals on both sides of the board.

Cat. H-5590.... Pkt 50 pins \$1.90 pack

MATRIX BOARD

Tough phenolic board with punched holes, Ideal for types, bread boards, science or hobby projects. 2.54mm spacing x 76mm x 76mm

\$1.70 ea Cat H-5310 . .

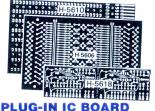
DIL BOARD



Specially made for Dick Smith Electronics to take up to 5 DIL IC's up to 16 pin. Don't 'birdsnest' anymore es assembly easier. Quality pre-punched board deep etched copper lands.

170mm x 60mm

\$2.30 ea Cat. H-5602 10 up \$2.10 ea



PRINTED STRIPBOARDS DICK SMITH SPECIFICATIONS - PLATED STRIPS -ALPHA NUMERIC GRID The most versatile board of the lot! Etched copper

Fantastic plug-in printed circuit board, 2.54mm pin spacing to accept directly up to 14 x 14 pin or 16 pin IC's or up to 20 'Mini-Dip' IC's. Lands are silver plated and a 24 way 2.54mm plug is etched into one end of the board so that it can be used with a 24 way edge connector. An excellent high quality board for the hobbyist or engineer.

2.54mm spacing x 60(w) x 100(l)mm

Cat. H-5610 . . \$2.25 10 up \$2.05 ea

DESIGN BREADBOARD

This is an extremely useful board etched and punched in such a unique pattern that it will accommodate almost all types of integrated circuits and transistor amoust an types of metgrated unclusts and translstor packages as well as passive parts. Each board has over 500 holes punched on 2.54mm grid and over 200 separate silver plated lands as well as in-built buss bars. It will even take the wide 24, 28, 36 and 40 pin DIL packages as well as the 8, 14 and 16 pin packages.

Size: 2.54mm spacing x 80mm x 127mm \$2.95 ea

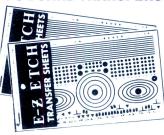
Cat. H-5606 10 up \$2.70

OP-AMP EXPERIM. PCB

Another very useful design for the experimenter: suits 74l type op-amps, with provision made for just about all circuit variations: input, feedback, compensation and power supply components are all catered for. Ideal for one offs. Dual circuits

\$4.50 ea10 up \$4.10 ea

PC BOARD TRANSFERS



The EZ way to make one-off pcb's. Dry transfer sheets enable you to 'draw' your pattern direct on the copper and the transfers act as resist. 6 sheets of transfers per pack, consisting of IC pads, component pads, lines, circles, junctions, arrows, bends, etc. You can also use these to make 1:1 pcb artwork on film, ready for reversal with Scotchcal H-5690 film.

Resist is effective with most types of etchant.

NEGATIVE PHOTO RESIST

Size 1 (3.1 mm high) Black lettering Size 2 (2.3mm high) Black lettering Cat. N-1804 \$8.25
Size 2 (2.3mm high) White lettering

Cat. N-1806 10 or more \$7.50

sheets that are easily

FERRIC CHLORIDE **ETCHANT**

Now supplied in a great new no-spill 500ml bottle of working solution (Ferric Chloride). No more fiddling around with beads and hot water! (Replacement for etchant in kits above left)

resist: 50 ml bottle, enough for approx. 1500 sq cm of pcb. Cat H-5722. So. Zo
Developer: 50ml working strength solution developer for negative resist. Enough for entire contents of 50ml resist bottle.
Cat H-5726. Soml \$8.50

The easy way to make professional quality PC boards in your own home (or prototypes in industry). Uses a standard negative of the PCB

and forms an image on exposure to UV light. The image is develope to form the 'tracks' of the PCB, ready for etching. Full instruction

POSITIVE PHOTO RESIST

Similar to above system, but this is a positive working polyvinyl compound which uses a positive film (ie, the tracks are represented as black and the unwanted copper area clear). This means that you can use 1:1 tapes & pads, etc on a piece of clear film for one off or

Cat H-5/2U 50ml \$7.95

Developer: 70 grams of developer crystals which make up to 2 litres of positive developer (enough for 50ml positive resist). Cat H-5724. 70g \$3.95



Want to make fully professional quality panels, scales, etc in just a few minutes? Or even copy magazine pcb board patterns so you can photographically repro-duce them? You need Sootchcal – a range of easily managed photosensitive products ideal for the hobbyist to use with a minimum of effort. There's a polyester film for copying scales, pcb patterns, etc, and a choice of either red or black coloured aluminium sheet to make your panels from.

Make your own PCB's & panelsit's easy with these aids from Dick Smith Electronics.

Photosensitive Reversal Film

You can use this film to reproduce pc patterns, dial scales, etc. Ready for use on photo resist (see above) or Scotchcal aluminium panels. Film is opaque to UV (orange emulsion). Size is 25 x 30cm, supplied with sheet of drafting film for you to prepare pc pattern or scale on using Letraset, ink, pads, etc. ... \$7.95 per sheet

Photosensitive Aluminium Sheet

Self adhesive aluminium sheet with either red or black photo-Sen agnessive auminium sheet with either red or black photo-sensitive emulsion. When developed, exposed areas (ie, clear areas on film) remain while rest is removed. A fully professional quality panel can be made in less than 10 minutes! Sheet size 25 x 30cm. Supplied with full instructions 8 polyester film sheet.

Red Emulsion: Cat H-5692 \$8.95 per sheet Black Emulsion: Cat H-5694 \$9.95 per sheet Developer: 50ml bottle de

developer for any of the Scotchcal range

PROJECT BOXES

METAL CABINETS

Beautifully made cabinets to suit a huge variety of projects, especially those with meters, controls, etc which need to be mounted on the front panel. They consist of an aluminium base, slots, and selftapping screws complete with cup washers. All-inall a case you'd be proud to put your prestige projects into. They come in an attractive two-tone

finish.	Ea	10 up
102 x 56 x 83mm Cat H-2741	\$3.95	\$3.65
150 x 61 x 103mm Cat H-2742	\$4.95	\$4.50
150 x 76 x 134mm Cat H-2743	\$5.95	\$5.40
185 x 70 x 160mm Cat H-2744	\$6 05	\$6 30



ALUMINIUM BOXES

Just the shot for those weekend projects that get left lying around! Put them in an economical aluminium box...The boxes come in two pieces which slide together - they even come with screws to hold them together! useful – and in a wide range of sizes. Natural finish.

110 x 51 x 70mm	Cat H-2300	\$2.65	\$2.50
104 x 60 x 46mm	Cat H-2305	\$2.30	\$2.10
127 x 102 x 76mm	Cat H-2320	\$3.75	\$3.40
133 x 76 x 54mm	Cat H-2325	\$3.20	\$2.90
152 x 132 x 103mm	Cat H-2330	\$4.75	\$4.30
180 x 158 x 118mm	Cat H-2335	\$7.75	\$7.00

INSTRUMENT CASES

The professional look for your instrument projects. Made of Marviplate steel with aluminium front and rear panels, these cases even have smart handles to make them look just like commercially built units. There's one just right for your project! Ea 10 up

203 x 102 x 254mm Cat H-2455 \$22.95 \$21.00 228 x 76 x 305mm Cat H-2465 \$24.00 \$21.00



ALL-STEEL PROJECT CASE



Two-part case ideal for all your small instruments etc. Twin 'U' construction, top is slotted for ventilation, Size 160 x 130 x 50mm, Finished in Blue with metalic base. Cat H-2762

Value at

19in RACK MOUNTING CASE

Quality black instrument case fits standard 19 inch racks, overall they're 42.5 x 25 x 14cm. Supplied flat, assembly takes just a couple of minutes. Heavy gauge (3mm) front panel; top and bottom pre-punched for ventilation.

amazing \$4995 10 up value!



DIECAST ALUMINIUM

Precision die-cast boxes have always been expensive, but these boxes prove you don't have to pay through the nose! English & Australian made, and you save a fortune over inferior models! These are the ones with channelled walls for easy PCB mounting - and they're ideal for RF circuits because the lid forms a very effective screen. They're also great for circuits involving heat - remember diecast aluminium makes a great heatsink. And these boxes will withstand incredibly high temperatures: up to 600 degrees C! Complete with screws



For the computer hobbyist



Superb quality beige steel case takes twin drives, pc, etc. Pre-cut back panel with 8 slots, fan, 9 input/ output sockets etc. Measures 490 x 390 x 145mm Cat H-2490

10 up

This precision instrument case exclusive to Dick Smith Electronics
has a specially designed vent system to
allow for free circulation of air. Its unique snap together design means that no screws are required. With front and back panels includ-ed this case is ideal for small projects. Size 95 x





10 up \$ 4 295 \$11.95

A top quality heavy duty instrument case which is just perfect for power supply kits etc. Top and bottom air vents and front and back panels are included. Complete with removable screw-in rubber feet, this is one of the strongest plastic cases ever available.
Size 200 x 145 x 75mm.

10 up \$4 395

A superb case for all 'instrument' type projects, and many other besides. Case splits apart for ease of working, comes complete with 4 rubber feet and assembly screws. Amazingly versatile allowing for various PCB mounting positions, front & rear panel are moulded plastic for ease of working (they can be replaced with aluminium panel if required). Size approx, 200 x 160 x 65mm, Cat H-2505

INSTRUMENT **EQUIPMENT CASE**

Designed for use with our UHF transceiver kit (K-3600) but superb for a large range of instruments, communication equipment, projects, etc. Features removable front and rear panels, easy PCB mounting. Provision for mounting bracket, too. Size 210 x 175 x 55 mm. Cat H-2520



MINI PROJECT CASE

Moulded case for small projects. Complete with 'matrix' style assembly board, lid has flange mounts. Case size 66 x 46 x 30mm. Ideal for car projects! 10 up \$2.70 \$ **295**



POWER SUPPLY CASE

Heavy slotting makes this the ideal power or other heat generating Includes both front and rear pane slot system makes for easy pcb mounting. 130

10 up \$7.25 \$ 795



INSTRUMENT CASE

What a case! It will make any grotty project look a million dollars! With multi-way tilting bail to hold case at any angle, has rubber feet tool Dress up your project. Buff coloured, size 210(w) x 270(d) x73(h). Cat H-2525



THE CASE!



Magnificent! Everything you could want in a project case is here PCB mounting slots, PCB mounting posts, transformer mounting posts. ventilation slots, speaker (sound) slots ...
everything! A superb case for any project (many commercial designs, too!) Size a huge 190 x 80mm. Cat H-2507

10 up \$17.95 \$ 4 995

Dick Smith ZIPPY BOXES!

There is only one genuine 'Zippy' box - the one with the all-round deep ribbing. Don't be fooled by inferior copies - this is the one used by the major electronics magazines because of its versatility. Insist on the one and only - genuine - Zippy Box from Dick Smith!

More projects are built in genuine Dick Smith 'Zippy Boxes' than any other case. And the reason is simple: they're so versatile! From the tough moulded case with its deep ribbed sides, to the close-fitting aluminium lid with screws supplied for ease of use and versatility you cannot beat a genuine Zippy Box. The

ribbed sides are ideal for mounting PCB's without worrying about screws - and the PCB can be mounted either lengthwise or across the box. These are the boxes used by beginners in the Fun Way into Electronics projects - and thousands of other projects.

Small - UB5 (28 x 54 x 83mm) Cat H-2755



Medium - UB3 (41 x 68 x 130mm) Cat H-2753

\$**2**95 (10 up \$**2**60)

Giant - UB2 (60 x 113 x 196mm) Cat H-2752

\$445 (10 up \$375)



DATA SECTION

The following 30 pages of data are included with our compliments to the hundreds of thousands of hobbyists, technicians, amateurs, computer buffs, service personnel, engineers, etc who have come to regard the Dick Smith Electronics Catalogue as not just a place to find the best in electronics ... but information as well.

Thank you for your support over the years. We hope you will find this

information useful.

The staff of Dick Smith Electronics.

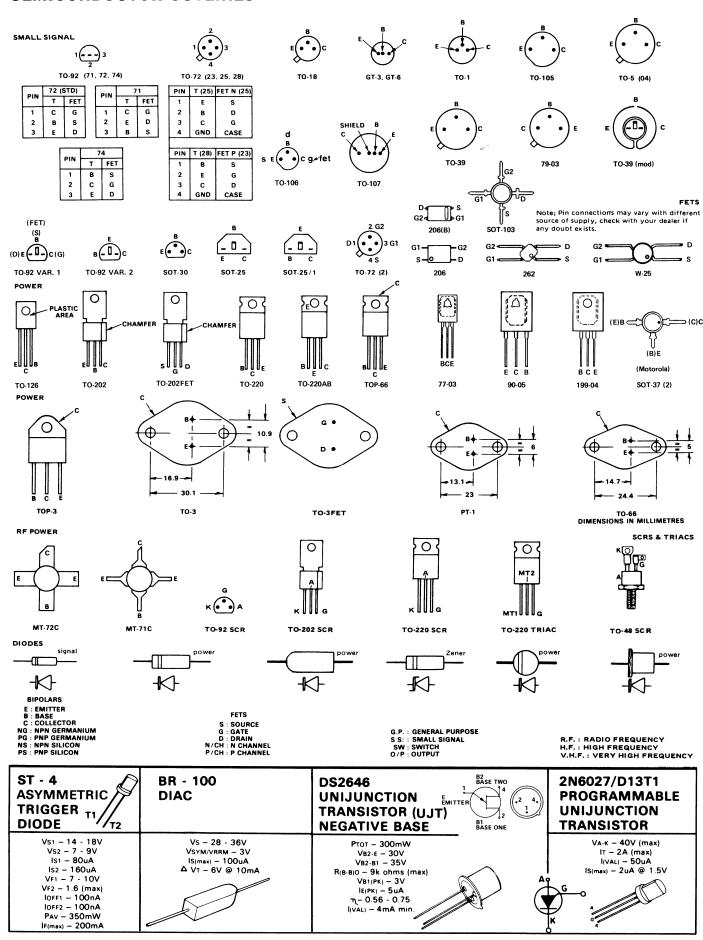
BIPOLAR TRANSISTORS

TYPE	CASE	POL MAT	Vce	Vcb	IC mA	Vces	@ IC	Hfe @	IC mA	MHz Ft @	IC mA	Ptot mW	USE	COMPARABLE TYPES
AC126 AC127 AC128 AC132 AC187 AC188 AD161 AD162 AF116 ASZ15 ASZ18	TO-1 TO-1 TO-1 TO-1 TO-1 TO-1 PT1 PT1 TO-7 TO-3 TO-3	PG PG PG PG PG PG	12 16 16 12 15 15 20 20 15 60 32	32 32 32 32 25 25 25 32 32 32 100	100 500 1000 200 1000 3000 3000 10 10A 10A	0.6 0.35 0.8 0.6 0.6 0.4 0.4	1A 200 1A 1A 1A 1A 1A	140 105 60-175 115 100-500 100-500 80-320 80-320 150 20-55 30-110	2 50 300 50 300 300 500 500 1 1 A 1 A	1.7 1.5 1 1.3 1 0.02 0.015 75 0.2 0.22	10 10 10 10 10 10 300 300 1 1A 1A	500 340 1W 216 1W 220 4W 6W 50 30W 30W	Audio driver Audio O/P Audio O/P Audio O/P Audio O/P Audio O/P Audio O/P Audio Amp. Audio Amp. H.F. Amp. H.C. Sw. H.C. Sw.	2N406 AC187 AC188 AC188 AC127 AC128 AD165, 2N1218, 2N1292 AD143, AD152, AD147 AF135, AF136, 2N3127 OC28 OC36
BC107 BC108 BC109 BC109C BC157 BC158 BC159 BC177 BC178 BC178 BC179 BC182(L)	TO-18 TO-18 TO-18 SOT-25 SOT-25 TO-18 TO-18 TO-18 SOT-30 (TO-92/74	NS S S S S S S S S S S S S S S S S S S	45 20 20 20 45 25 20 45 25 20 50	50 30 30 30 50 30 25 50 30 25 60	100 100 100 100 100 100 100 100 100 200	0.2 0.2 0.2 0.25 0.25 0.25 0.25 0.25 0.2	10 10 10 10 10 10 10 10 10 10 10	110-450 110-800 200-800 420-800 75-260 75-500 125-500 75-500 125-500 100-480	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	300 300 300 150 150 150 150 150 150	10 10 10 10 10 10 10 10 10 10	300 300 300 300 300 300 300 300 300 300	S.S. Amp. S.S. Amp. Low Noise S.S. Amp. Low Noise High Gain S.S. Amp.	BC207, BC147, BC182 BC208, BC148, BC183 BC209, BC149, BC184 BC209C, BC184C, BC149C BC177, BC307, BC212 BC178, BC308, BC213 BC179, BC309, BC214 BC157, BC307, BC212 BC158, BC308, BC213 BC159, BC309, BC213 BC159, BC309, BC214
BC183(L)	SOT-30 (TO-92/74	NS	30	45	200	0.25	10	100-850	2	150	10	300	S.S. Amp.	BC108, BC208, BC148
BC184(L) BC207 BC208 BC209 BC213(L)	SOT-30 TO-106 TO-106 TO-106 SOT-30 (TO-92/74	NS NS NS NS PS	30 45 20 20 30	45 50 25 25 45	200 100 100 110 200	0.25 0.25 0.25 0.25 0.25	10 10 10 10 10	250-850 110-220 110-800 200-800 80-400	2 2 2 2 2	150 150 150 150 200	10 10 10 10	300 300 200 200 300	Low Noise High Gain S.S. Amp. S.S. Amp. Low Noise High Gain S.S. Amp.	BC109, BC209, BC149 BC107, BC182, BC147 BC108, BC183, BC148 BC109, BC184, BC149 BC308, BC158, BC178
BC214(L)	SOT-30 (TO-92/74	PS	30	45	200	.25	10	80-400	2	200	10	300	S.S. Amp.	
BC327 BC328 BC337 BC338 BC546 BC547 BC548 BC549 BC556 BC557 BC556 BC557 BC636 BC639 BC639 BC640	TO-92 (VA TO-92 (74) TO-92(74)	PS S S S S S S S S S S S S S S S S S S	45 25 45 25 80 45 30 30 30 80 45 30 30 80 80 80	50 30 50 30 80 50 30 30 30 80 50 30 45 45 100	800 800 800 1000 1000 100 100 100 100 10	0.7 0.7 0.7 0.6 0.6 0.6 0.6 0.65 0.5 0.5	500 500 500 500 100 100 100 100 100 100	100-600 100-600 100-600 100-600 125-500 110-800 200-800 75-500 110-330 75 125-600 40-250 40-250 40-160	100 100 100 100 2 2 2 2 2 2 2 2 2 2 2 150 150 150	100 100 200 300 300 300 300 300 150 150 150 130 130 50	10 10 10 10 10 10 10 10 10 10 10 10 10 500	800 800 800 500 500 500 500 500 500 500	O/P O/P O/P O/P S.S. Amp. S.S. Amp. S.S. Amp. Low Noise Small Sig. Low Noise High Gain S.S. Amp. G.P. Small Sig. G.P. Small Sig. Audio O/P Audio O/P Audio O/P Audio O/P Audio O/P	2N3638 BC327, 2N3643 2N3642 BC337 BC107, BC207, BC147 BC108, BC208, BC148 BC109, BC209, BC149 BC109C, BC149C BC157, DS557 BC158, DS558 BC159 BC639 BC640 MU9610, TT801 MU9660, TT800
BCY70 BCY71 BCY72	TO-18 TO-18 TO-18	PS PS PS	40 45 25	50 45 25	200 200 200	0.5 0.5 0.5	50 50 50	50 100-600 50	10 10 10	250 200 200	50 50 50	350 350 350	G.P. G.P. G.P.	BC212 BC212 BC213
BD137 BD138 BD139 BD140 BD262 BD263 BD266A BD267A BD681 BD682	TO-126 TO-126 TO-126 TO-126 TO-126 TO-126 TO-120 TO-220 TO-220 TO-126	NS PS	60 60 60 80 60 60 80 80 100	60 60 100 100 60 80 80 100 100	1A 1A 1A 4A 4A 8A 4A	0.5 0.5 0.5 0.5 2.5 2.5 2	500 500 500 500 1.5A 1.5A 3A	40-160 40-160 40-160 40-160 750 750 750 750 500» 750»	150 150 150 150 1.5A 1.5A 3A 3A 4A 1.5A	250 75 250 75 7 7 7 7 1	500 500 500 500 1.5A 1.5A	8W 8W 8W 36W 36W 60W 60W 40W	G.P. O/P G.P. O/P G.P. O/P High Gain Darl. O/P High Gain Darl. O/P High Gain Darl. O/P High Gain Darl. O/P Darlington O/P Darlington O/P	BD139 BD140 40409 40410 BD266 BD267 BD263 BD263
BDY20 BF115	TO-72/28)	NS NS	60 30	100	15A	1.1	4A	20-70	4A	1	4A	115	Power O/P	2N3055
BF167 BF173 BF178 BF179 BF180 BF184 BF185 BF194 BF195 BF199	TO-72(28) TO-72(28) TO-72(28) TO-39 TO-72(25) TO-72(28) TO-72(28) SOT-25/1 SOT-25/1 TO-92 (VAR)2	NS NS NS NS NS NS NS NS	40 25 115 115 20 20 20 20 20 25	50 25 40 185 250 30 30 30 30 30	25 50 50 20 30 30 30 30 25			45-165 26 92 20 20 13 75-750 34-140 65-220 35-125 37»	1 4 7 30 20 2 1 1 1 1 7	230 350 550 120 120 675 300 220 260 200 550	1 4 5 10 10 2 1 1	145 130 230 600 600 150 145 145 250 250 500	V.H.F. Amp. T.V. I.F. Amp. T.V. I.F. Amp. T.V. Video Amp. T.V. Video Amp. U.H.F. Amp. H.F. Amp. H.F. Amp. H.F. Amp. H.F. Amp. H.F. Amp.	BF336 BF338 BF200 BF195 BF185 BF180
BF200 BF336 BF337 BF338 BF469 BF470	TO-72(25) TO-39 TO-39 TO-39 TO-126 TO-126	NS NS NS NS PS	20 180 200 225 250 250	30 185 300 250 250 250	20 100 100 100 50 50			15 20-60 20-60 20-60 50 50	3 30 30 30 25 25	650 130 130 130 60	3	150 3W 3W 3W 1.8W	V.H.F. Amp. Video Amp. Video Amp. Video Amp. G.P. High V. Amp. G.P. High V. Amp.	BF180
BFR90 BFR91 BFY50 BFY51 BFY52 BFY90	SOT-37(2) SOT-37(2) TO-39 TO-39 TO-72(25)	NS NS NS NS	15 12 35 30 20 30	20 15 80 60 40 30	25 35 1A 1A 1A 25	0.3 0.2 0.35 0.35	30 150 150 150	25-250 25-250 30 40 60 25-125	14 30 150 150 150 2	5GHz 5GHz 60 50 50 1.3GHz	14 30 50 50 50 50 25	180 180 2.86W 2.86W 2.86W 200	Wide Band Amp. Wide Band Amp. G.P. G.P. G.P. U.H.F. Amp.	

BIPOLAR TRANSISTORS

							OLAR							
TYPE	CASE	POL MAT	Vce	Vcb	IC mA	Vces @	⊋ IC	Hfe @ I	C mA	MHz Ft @	IC mA	Ptot mW	USE	COMPARABLE TYPES
BUX80	TO-3	NS	400		10A	1.5	5A			8		100W	Deflection, High current Sw. G.P. Power	
DS547	TO-92 (VAR)	NS	45	50	100	0.6	100	110-800	2	300	10	500	S.S. Amp.	BC107, BC207, BC147
DS548	TO-92 (VAR)	NS	30	30	100	0.6	100	110-800	2	300	10	500	S.S. Amp.	BC108, BC208, BC148
DS549	TO-92 (VAR)	NS	30	30	100	0.6	100	200-800	2	300	10	500	Low Noise Small Sig.	BC109, BC209, BC149
DS557	TO-92 (VAR)	PS	45	50	100	0.25	100	75-260	2	150	10	300	S.S. Amp.	BC177, BC307, BC212
DS558	TO-92 (VAR)	PS	25	30	100	0.25	100	75-500	2	150	10	300	S.S. Amp.	BC178, BC308, BC213
MJ802 MJ2501 MJ2955 MJ3001 MJ4502 MJ15003 MJ15004 MJE340 MJE350	TO-3 TO-3 TO-3 TO-3 TO-3 TO-3 77-03/199-0		90 80 60 80 90 140 140 300 300	100 80 70 80 100 140	30A 10A 15A 10A 30A 20A 20A 500 500	0.8 2 1.1 2 0.8	7.5A 5A 4A 5A 7.5A	25-100 1000 20-70 1000 25-100 25-150 25-150 30-240 30-240	7.5A 5A 4A 5A 7.5A 50	2 4 2 2 2	1A 500 1A	200W 150W 115W 150W 200W 250W 250W 20W	High Power O/P Darl. O/P High Power O/P Darl. O/P High Power O/P High Power O/P High Power O/P G.P. High V. Power G.P. High V. Power	MJ2955 2N4908, 2N4909, 2N5871
MJE2955 MJE3055 MRF629 MRF660 MU9610 MU9611 MU9660 MU9661	90-05/199-0 90-05/199-0 79-03 TO-220 AI 152 152-01 152 152-01	NS NS NS NS NS PS PS	60 60 16 16 30 30 30	70 70 36 36 40 40 40	10A 10A 400 2.4A 2A 2A 2A 2A	1.1 1.1 0.4 0.4 0.4 0.4	4A 4A 1.5A 1.5A 1.5A 1.5A	20-100 20-100 20-200 20-160 80-400 80-400 80-400	4A 4A 100 250 350 350 350 350	2 2 70 70 70 70	500 500 250 250 250 250	75W 75W 5W 25W 1W 1W 1W	G.P. Power G.P. Power R.F. Power UHF R.F. Power UHF O/P O/P O/P O/P O/P Driver - O/P	TIP2955 TIP3055 TT801 TT801 TT800 TT800
NSD106 NSD206	TO-202(35 TO-202(35		100 100	140 100		.29 .2-1	100 100	50-150 50-150	100 100	80 150	50		Driver - O/P	
OC26 OC28 OC44N OC45 OC70 OC71 OC72 OC74N OC75	TO-3 TO-3 TO-1 GT-3 GT-3 GT-6 TO-1 GT-3	PG PG PG PG PG PG PG	30 60 5 5 10 10 16 10	50 100 15 15 30 30 32 20 30	3.5A 10A 10 10 50 50 250 300 50	0.7 0.4 0.6	3A 10A 300	30-100 20-55 45-225 25-125 30 30-75 45-120 60-150 60-130	1A 1A 1 5 3 10 50 3	0.3 0.2 7.5 3 0.5 0.6 .35 0.1	500 1A 1 3	32W 30W 85 85 125 125 165 550 125	G.P. O/P H.C. Switch R. F. Amp. R. F. Amp. G.P. Amp. G.P. Amp. Audio O/P Audio O/P G.P. Amp.	AD149 ASZ15 AF125, AF135, AF172 AF132, AF185, AF196 AC121, AC126, 2N1190 AC126, 2N2429 AC122, AC125, AC162 AC125, AC180, AC192 AC173, AC192
TIP31B TIP32B TIP2955 TIP3055	TOP-66 TOP-66 TOP-3 TOP-3	NS PS PS NS	80 80 70 70	80 80 100 100	3A 3A 15A 15A	1.2 1.2 1.1 1.1	3A 3A 4A 4A	20 20 20 20	500 500 4A 4A	3 3 0.8 0.8	500 500	40W 40W 90W 90W	Power Amp – Sw. Power Amp – Sw. Power Amp – Sw. Power Amp – Sw.	MJE2955 MJE3055
TT800 TT801	TO-39(Mo TO-39(Mo		60 60	60 80	1 A 1 A	ļ		40-120 40-120	100 150	100 60		800 800	Audio Driver – Sw. Audio Driver – Sw.	TT797, NSD206, 2N4030 TT798, NSD106, 2N3019
2N301 2N706A 2N2222A 2N2905A 2N2906A 2N3059 2N3053 2N3055 2N3563 2N3564 2N3566 2N3566 2N3566 2N3566 2N3566 2N3568 2N3640 2N3641 2N3641 2N3642 2N3645 2N3645 2N3645 2N3645 2N3645 2N3645 2N3645 2N36464 2N3645 2N3645 2N36464 2N3645 2N36464 2N3645 2N36464 2N36464 2N36464 2N36464 2N36464 2N36464 2N36464 2N36464 2N36464 2N36464 2N36464 2N36464 2N36464 2N36464 2N36464 2N3664 2N3664 2N3664 2N3906 2N3664 2N3906 2N3664 2N3906 2N3664 2N3906 2N3664 2N3906 2N3664 2N3906 2N3664 2N3906 2N3664 2N3906 2N3664 2N3906 2N3664 2N3906 2N3664 2N3906 2N3664 2N3906 2N3664 2N3906 2N3664 2N3906 2N3664 2N3906 2N3666 2N3666 2N3906 2N3666 2N3	TO-3 TO-18 TO-18 TO-18 TO-18 TO-19 TO-39 TO-39 TO-39 TO-66 TO-3 TO-106 TO-106 TO-105 T	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	32 15 40 60 25 80 40 55 60 12 15 25 30 40 60 25 12 30 40 40 25 12 30 40 40 25 11 40 40 40 40 40 40 40 40 40 40 40 40 40	40 25 75 60 60 25 140 60 90 30 30 40 80 80 80 25 12 60 60 45 60 40 40 36 40 40 40 40 40 40 40 40 40 40 40 40 40	3A 200 800 600 600 100 11A 700 50 500 500 500 500 500 500 500 500	1 1.6 1.6 0.5 1.4 0.1 1.1 0.3 .35 1 .25 0.25 0.25 0.22 0.22 0.22 0.22 0.22	500 500 500 150 200 4A 20 1 100 150 150 150 150 150 150 300 50 10 150 150 150 150 150 150 150 150	50 20 20 75 40-120 100-300 150 50-100 50-250 25 20 20-200 150-600 150-600 40-120 40-120 40-120 40-120 40-120 40-120 50-300 115-300 60-300 100-300 150-600 150-600 100-300 150-600 100-300 150-300 150-300 150-300 150-200 155-	1 1 50 50 10 150 50 50 50 50 50 1mA 100 100 100 250 250 2.5A 1A	0.2 200 300 200 200 100 100 100 0.8 0.8 60 400 40 40 60 60 150 250 250 250 200 100 500 500 500 500 500 500 500 500 5	1A 20 50 50 50 50 50 50 50 50 50 5	11W 300 500 600 600 800 2200 800 25W 115W 200 200 300 300 300 300 300 350 350 350 350 3	Audio O/P High S. Sw. G.P. H.F. Amp. G.P. Switch Audio O/P O/P - Sw. R.FI.F. Amp. & Asc. R.FI.F. Amp. & Asc. Low Level Amp. G.P. Amp. & Sw. Low Level Amp. G.P. Amp. & Sw. Low Level Ref. H.F. Mobile R.F. Power Transistor VHF Output Audio Output	AT1138, OC26 BC108 etc BD137 TIP31B BDV20 BF173 BF167 BC108, BC208 BC337 BC337 BC327 BC337 BC327 BC327 BC313 BC167A, BF194 BC559 BC307A, 2N2904
2SB367 2SC1096 2SC1306 2SC1307 2SC1674 2SC1969 2SC2166	PT-1 TO-202-R TOP-66 TOP-66 TO-92 TOP-66 TOP-66	PG NS NS NS NS NS	25 30 65 70 20 30 75	25 40 65 70 30 60 75	20	0.3	1A 2A 3A 8A 10 6A 4A	45-70 45-250 40-200 20-150 40-180 10-180 35-180	500 1A 500 2A 1 10 100	0.5 60 300 150 600 150	1	4W 10W 12W 25W 250 20W	Audio Output G.P. Output H.F. Output H.F. Output VHF Amp. H.F. Output H.F. Output	2SC1098, TIP31 2SC2166 2SC1969 2SC1307 2SC1306
40250 40408 40409 40410	TO-66 TO-5 TO-39(H) TO-39(H)	NS NS NS PS	50 80 80 80	50	4A 700 700 700	1.5 1.4 1.4 1.4	1.5A 150 150 150	25 40-200 50-250 50-250	100 200 150 150	1 100 100 100		29W 1W 3W 3W	Power Transistor Power Transistor Power Transistor Power Transistor	2N3054 BC639 BD139 BD140

SEMICONDUCTOR OUTLINES



FETS

FE13							—-г								_	
FETS	Case	BVGS: V @	S IG(uA)	VGS(O Min N		DS ID		IDss(mA) Min Max @	VDS	VGS	Yfs(umhos) Min Max		/DS	Ptot mW	U	se/Comments
BF245B BF981 BFW10 BFW11 BFW61 MEM631 MFF102 MPF103 MPF104 MPF105 MPF106 MPF121 MPF131 2N4342 2N4360 2N5459 2N5458 2N5458 2N5486 3SK40 40673	TO-92 Var 1 SOT-103 TO-72(25) TO-72(25) TO-72(25) W-25 TO-92(72) TO-72(2) TO-72(2)	30 >6 30 30 30 25 +/-6 +/-6 25 25 25 25 25 40 25 25 25 25 25 25 25 25 25 25 40 25 25 25 25 25 4/-6 +/-6 4/-6 25 4/-6 4/-6 4/-6 4/-6 4/-6 4/-6 4/-6 4/-6	+/-10 +/-10 10 1 1 1 1 1 +/-10 10 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	.5 2.5 .5 .5 .5 1 2 .3 .5 2	4 4 4 8 6 7 8 4 4 4 4 5 5 6 6 7 8 3 4 6 4	115 20 115 20 115 2 115 1 115 1 115 1 115 1 115 20 115 20 115 20 115 10 115 10 115 10 115 110 115	00uA 00uA 00uA 00uA 00uA 00uA 00uA 00 00	6 15 4 25 8 20 4 10 2 2 20 5 30 30 2 2 20 1 5 2 9 4 16 4 10 5 30 30 12 30 12 30 1 5 2 6 4 9 1 5 4 10 8 20 25 35	15 10 15 15 15 15 15 15 15 15 15 15 15 15 15	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3000 650 14000 typ 650 650 650 1600 typ 8000 2000 750 22000 750 22000 600 2500 700 1000 500 1000 500 1000 500 1000 500 3500 600 3500 600 3500 700 4000 800 8000 12000 typ	000000000000000000000000000000000000000	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	300 225 300 300 300 300 310 310 310 310 310 310		/CH Junction Audio to H.F. /CH Dual Gate MOS. VHF Amp. /CH Junction Audio to H.F. /CH Dual Gate MOS VHF Amp. /CH Dual Gate MOS VHF Amp. /CH Junction — VHF /CH Junction — Audio Sw. /CH Junction — VHF /CH Junction — VHF /CH Junction — VHF /CH Junction — VHF /CH Dual Gate MOS. VHF Amp. /CH Dual Gate MOS. VHF Amp.
POWER	FETS	V _{DS}	SS (m	in)	I _D (ma	~\		V _{DS(on)/} I _D	T	V _{GS (o}	ff) D = 1m	P		Diss	.,	
	Case	V	@ I _C	· 1	D (ma	~ <i>j</i>		V/A VGS = 1	ov	min V	'D = 1m ' max	<u> </u>	c = :	25°C \	Jse/	Comments
VN46AF VN66AF VN86AF 2SJ48 2SJ49 2SJ50 2SK133 2SK134 2SK135	TO-202 F TO-202 F TO-202 F TO-3 F TO-3 F TO-3 F TO-3 F TO-3 F	40 60 80 -120 -140 -160 120 140 160	10 10 -10 -10 -10 10)mA	2.0 2.0 2.0 -7 -7 -7 7 7		-	3.0/1.0 3.0/1.0 4.0/1.0 -12/-7 (VGD=0) -12/-7 12/-7 12/7 12/7		0.8 0.8 -0.15 -0.15 -0.15 0.15 0.15	2.0 .20 2.0 -1.45 -1.45 -1.45 1.45 1.45		12.5 12.5 12.5 100 100 100 100 100	N N P P P N N N	N-chai N-chai P-chai P-chai N-chai N-chai	in Enhancement Mode VMOS FET in Enhancement Mode VMOS FET in Enhancement Mode VMOS FET in Enhancement Mode MOS FET in Enhancement MODE MODE MODE MODE MODE MODE MODE MODE
DIOD	ES							- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1			ı					
TYPE	CASE	VR	IF (mA)	Cd (pl	F)	VF	@ IF (mA)	\perp	IR (uA)	@ VR	Trr	(nS)	U	se/C	Comparable Types
Germanium AA119 OA47 OA90 OA91 DSOA91 OA95	DO-7 DO-7 DO-7 DO-7 DO-7	30 25 20 90 50 90	10 11 45 50 30 50	0 5)	1.2 3.5		2.2 0.45 1.5 1.9 1	10 10 10 10 10 5		150 100 450 180 200 110	30 25 20 75 10 0.75	7	0	Go G. G.	old Bo P. Po P. Po P. OA	1 Detection Point Contact onded G.P. Switching oint Contact OA70, OA80 oint Contact OA71, 79, 81 A91, 1N60 oint Contact
Silicon BA100 BA102 BA114 BA 234/4 BA W 62 BB119 BB122 OA200 OA202 1N914A 1N4148 5082-2800	DO-7 DO-7 DO-7 DO-35 SOD-27 DO-35 DO-35 DO-7 DO-7 DO-35 DO-35 DO-35 DO-35	60 20 75 15 30 50 150 75 75 75	90 20 10 20 16 16 75 20 30	00 00 00 60 60 60 60	25 20-45 (2 20-25 12 25 25 4 4 4 2	@ 4V @ 3V	0.7 1 0.75 Cd Rat	10 1.4 @ 4/10 V/VV 1 100 5 tio \$1.3 tio 5.2 10 10 10 10 10 10		0.1 5 0.05 0.1 0.1 5 0.025 0.025 0.25	15 75 28 50 150 75 20 6	4 4 4 0		Va Bi UI Hi Va Va Sr Sr Sr Sr	ariable as St. HF St. gh Sparicap aricap mall St. mall St. mall St. chottle	Alloyed e Capacitance tadilizer tw. peed Sillicon Sw. p - Replaces BA102 p V.H.F. U.H.F. Signal - Alloyed Signal - Siloyed Signal - Siloyed Signal Sw. 1N4148 Signal Sw. 1N414A Silicon Sw. 1N414A Silicon Sw. 1N414B Ky (Hot Carrier) UHF or, Mixer, Switch
SCR'S	S CASI	<u> </u>	VDRM	IT (r.	m.s.) A)	IGT (mA		VGT		PG (AV) (W)	IH (m	A)		/dt uS)		Comments (25°C)
C103B C106Y C106D C122D C122E C164D C168D S4008 S6008L TIC126E	TO-92 TO-20 TO-20 TO-22 TO-22 TO-48 TO-48 TO-22 TO-22	2 2 0 0 0	200 30 400 400 500 400 800 400 600 500	8	8 4 4 3 3 1 1 6 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	.2 ma .2 ma .2 ma .2 ma .25 m .25 m .40 - 8 .25 m .25 m .20 m	ix ax ax 80 80 ax. ax	.8 max .8 max .8 max 1.5 max 1.5 max 2 typ. 2 typ. 1.5 max 1.5 max		.01 .1 .1 .5 .5	5 max 5 max 3 max 30 max 30 max 30 max 40 max	ix ix	8 : 50 50 50	typ. typ. typ. typ. typ. typ. typ. typ.		(Rgk = 1k) (Gate o/c) (Gate o/c)
TRIA	C'S CASE		VDRM		r.m.s.) A)	IGT (mA)		VGT		PG (AV) (W)	IH (m.	A)		//dt /uS)		(25°C)
BT139-500 Q-4006L4	TO-22 TO-22	0	500 400		16	50 75 ma	ax. all	1.5(Tj = 25° 2.5 max. all	C)	.5 .9	30 60 ma	÷	10	0 min. 0 typ.		(Gate o/c)
SC141D SC146D SC151D TIC246D 2N6343	TO-22 TO-22 TO-22 TO-22 TO-22	0	400 400 400 400 400		6 10 15 16* 3	50 ''' 50 ''' 50 '''		modes 2.5 " 2.5 " 2.5 " 2.5 " 2.5 "		.5 .5 .5	50 ma 50 ma 50 ma 50 ma 75 ma	IX. IX. IX.	15 25	O typ. O typ. O typ. O typ.		 (*case temp. below 70°) (commutating)

RECTIF	IERS									
TYPE	MAT	VR	IF(A)	VF	@	IF(A)	IR(uA)	@	VR	USE
A14P	s	1000	2.5	1.25		2.5	0.5		1000	Transient Protected (Controlled Avalanche)
A15A	s	100	5	1.1		5	5		100	G.P. Rectifier
A15B	S	200	5	1.1		5	5		200	Transient Protected (Controlled Avalanche)
BYX21L/200/R	S	75	25	1.2		25	1.1 mA		75	Automobile H. Duty Press fit.
DS5404	s	200	3	1.1		3	5		200	G.P. Rectifier
EM4005	s	50	1	1.1		1	5		50	G.P. Rectifier
EM401	s	100	1	1.1		1	5		100	G.P. Rectifier
EM404	l s	400	1	1.1		1	5		400	G.P. Rectifier
EM410	s	1000	1	1.1		1	5		1000	G.P. Rectifier
MR110	s	100	10							G.P. Stud Mount
MR410	s	400	10				1			G.P. Stud Mount
MR510	S	1000	3	1.1		3	5		1000	G.P. Rectifier
IN3492/R	S	100	25	1.7		18	1mA		100	Heavy Duty Automobile Press fit.
IN3493/R	S	200	25	1.7		18	1mA		200	Heavy Duty Automobile Press fit.
IN4001	S	50	1	1.1		1	5		50	G.P. Rectifier.
IN4002	S	100	1	1.1		1	5		100	G.P. Rectifier.
IN4004	s	400	1	1.1		1	5		400	G.P. Rectifier
IN4007	S	1000	1	1.1		1	5		1000	G.P. Rectifier.
IN5059(A14B)	S	200	2.5	1.25		2.5	0.2		200	Transient Protected (Controlled Avalanche).
IN5060(A14D)	S	400	2.5	1.25		2.5	0.2		400	Transient Protected (Controlled Avalanche).
IN5061 (A14M)	s	600	2.5	1.25		2.5	0.2		600	Transient Protected (Controlled Avalanche).
IN5062(A14N)	s	800	2.5	1.25		2.5	0.5		800	Transient Protected (Controlled Avalanche).
IN5404	s	400	3	1.1		3	5		400	G.P. Rectifier.
IN5408	l s	1000	3	1.1		3	5		1000	G.P. Rectifier.
IN5624	s	200	5	1.1		5	5		200	Transient Protected (Controlled Avalanche).
RECTIF	IER B	RIDGI	ES							
TYPE	MAT	VR	IF(A)	VF	@	IF(A)	IR(uA)	@	VR	USE
PA60	S	600	8	İ					·	G.P. Bridge
PB40	s	400	25	1.2(per	lea)	12.5	10		400	Heavy Duty Bridge
MB1	s	100	1.8		9/		5		100	Mini Bridge
MB4	Š	400	1.8	l			5		400	Mini Bridge
PO4	s	400	6	1.3 (per	lea)	6	10		400	Medium Duty Mini Bridge
W02	s	200	1.5	1.3 (per		1	10		200	Mini Bridge
W02 W04	S	400	1.5	1.1(per		i	10		400	Mini Bridge
VV 04	1 3	1 400	1.5	I i.i(per	ieg)	,	1 '0		700	min bridge

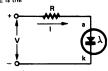
7 SEGMENT LED DISPLAYS Pin Connections (top view) Characteristic LN516RK 10 6 LT302 LT303 FND507 LT313 Z-4103 TIL393-9 Z-4155 DL704 LT312 FND560 LT547F.L DL707 Z-4117 Z-4150 Z-4151 **DL747** 7.6mm 7.6mm 7.6mm Digit Size 15.2mm 12.7mm 2.6mm Colour red red red 25mA red orange Av. Fwd. Current 25mA 25mA 25mA 25mA 20mA 5mA Fwd. Voltage 1 7 V 1.7 1.6 2.4 1.7 21 1.7 8 10 Min Reverse Breakdown Voltage 3V 6V 3V 3V 5V 100uA 100uA 100uA 100uA 100uA 100uA Z-4150 Z-4151 Z-4117 Z-4103 Max Rev Current 100uA Light Intensity Segment 320ucd 800ucd 800ucd 600ucd 600ucd 3300ucd 600ucd DL747 FND500 LN516RK LT302 DL750 LT312 FND507 FND560 LT547EJ 6680 400mW 500mW 340mW 400mW Max Pwr. Dissip. 340mW 960mW 14 Common Cathode Common Anode Pin out Z-4155 Types Types TIL393-9 7. Seg A Anodes DL704 TIL393-9 DL707 1. NC FND500 Z 4103 DI 747 2. Digit 1 Cath 8. Dig 4 Cath 14. Dig 7 Cathode FND560 FND507 3. Seg C Anode 9. Seg E Anodes 15. Sea B Anode LN516RK Z 4151 LT302 10. Dig 5 Cath 16. Dig 8 Cath 4. Dig 2 Cath LT303 LT312 5. Dec P. Anodes 11. Seg D Anode 17. Seg F Anode LT313 Z 4117 6. Dig 3 Cath 12. Dig 6 Cath LT547EJ Z 4152 18. Dig 9 Cath Multiplexed 9 Digit Z 4155, TIL393-9 Display DL704 DL707 Pin out DL747 Pin out Z-4150 Z-4151 FND500 FND507 FND560 Pin out DL704 Pin out DL707 Pin out Z-4117 LT302 LT312 Pin out Z-4103 LT303 LT313 LT516RK LT547EJ 6680 10 Sea G 10. NC 1. Seg. A 10. Sea. C 1. Seg. A 1 NC 10 NC 1. Seg. E 1. Sea. F 10 Sea. C 1. NC 10. R. Dec Point 11. Seg. G 11. NC 2. Seg. F 11. Seg. G 2. Seg. F 2. Cathode 11. Seg. C 2. Seg. A 11. Seg. D 2. Seq. D 2. Seg. G 3. NC 12. Seg. B 12. Cathode 3. Anode 12 NC 3. Anode 12. NC 3. Seg. F 3. Seq. F 12. Common 3. Common 13. Seg. B 14. Anode 13. Seg. A 14. NC 4. Common 13. Seg. C 4. Seg. C 4. Cathode 13. Seg. B 13. Seg. B 5. NC 14. Seg. A 5. NC 14. Anode 5. Seg. E 14. Seg. G 5. Dec. Point 5. NC 5. Seg. E 6. Common 15. Sea. B 6. Dec. Point 6. L. Dec. Point 6. Seg. B 7. Seg. A 6. Seq. E 6. Seg. D 7. Dec. Point 16. NC 7. Seg. E 7. Seg. G 7. NC 8. Seg. C 9. Dec. Point 8. Seg. D 9. Anode 8 NC 17. Common 8. Common 8. Seg. D 8. NC 9. Cathode 9. Seg. F 9. R. Dec. Point

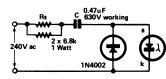
USING LEDS

DC Operation
When using a Light Emitting Diode (LED) as an indicator, use the following formula to determine series resistance for various voltages: R = (E-1.7) x 1000: 1; where R is the resistance in ohms, E is the supply voltage (DC) and I is the LED current in milliamps.

EG. to operate the LED at 20mA; for 6V, use 220 ohms 9V, use 380 ohms 12V, use 580 ohms 24V, use 1.2k ohms



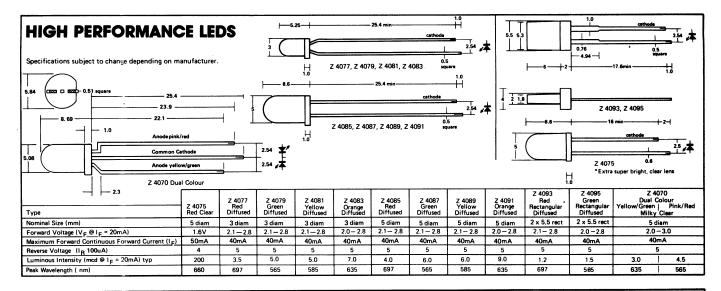




Mains Operation

To operate a LED directly from the 240V mains, a better scheme is to use the second circuit shown. In this, a capacitor is used as the voltage dropping element. A IN4002 diode or similar across the LED provides the rectification required. As the voltage drop across the LED is negligible compared with the supply, capacitor current is almost exactly equal to mains voltage divided by the capacitive rearrance.

reactance Xc. At 50Hz, 0.47uF will result in an Av LED current of about 16mA. Resistor Rs is to limit turn-on transients. A value of around 3.4k (2×6.8 k par.) should be adequate.





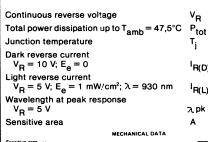


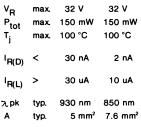
BPW 50

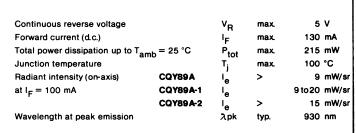
BPW 34

CQY89, LD271 GaAs LIGHT EMITTING DIODE

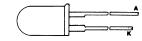
Epitaxial gallium arsenide light emitting diode intended for remote-control applications. It emits radiation in the near infrared when forward biased. Infrared translucent epoxy encapsulation (dark blue).









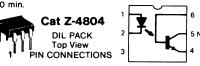


4N28 OPTIC COUPLER

A Gallium Arsenide LED optically coupled to a silicon phototransistor designed for application requiring electrical isolation and high current transfer ratios. They are a 6DIL plastic low cost pack. They are ideal for interfacing and coupling systems, phase and for feedback control, solid state switching and general purpose switching circuits.

Specifications:

Total device rating: Pd — 250 mW. Isolation voltage 500 min.



MOC 3021 TRIAC DRIVER OUTPUT COUPLER

This triac driver output coupler is a gallium arsenide LED pack, optically coupled to a silicon bilateral switch designed for general applications requiring isolated triac triggering such as interface from logic to mains operated equipment. These devices offer low current, isolated ac switching; high output blocking voltage; small size and low cost.

Specifications:

Peak blocking voltage: 400 Isolation voltage: 7500 min.

LED trigger current: 5mA typ.

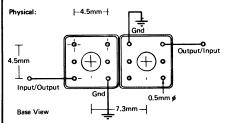
Ca

Cat Z-4516 2
DIL PACK
Top View 3
PIN CONNECTIONS

Output Voltage: 0.43V Output Current: 28mA Output Current: 28mA Output Power: 15mW Reverse Voltage: 10V max Response Speed: 20uS (load dependent) Operating Temperature: −65° to +175°C Peak Spectral Response: 800nm Termination: 30AWG colour code flex wire Dimensions: 15mm x 13mm (±0.5mm) x 0.65mm (1.5mm incl. terminating wire) Weight: 0.2g

MINIATURE SILICON

HELICAL FILTERS



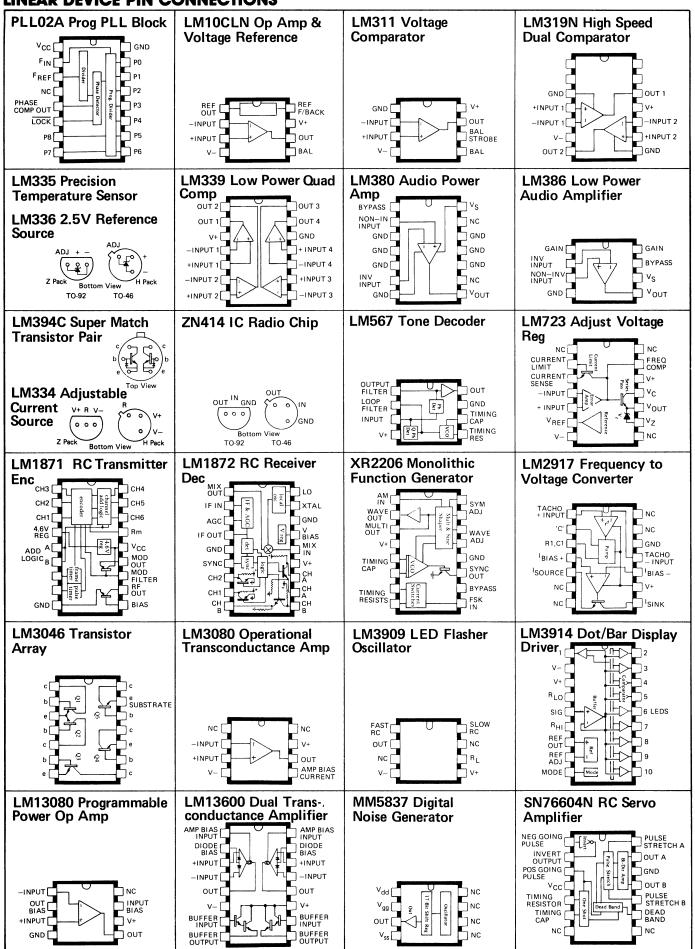
Specifications: 1-1850 1-1860 477MHz Centre Frequency 440MHz Bandwidth (@ -1dB) 12MHz min. Selectivity (Fo ± 30MHz) 12dB min Insertion Loss 3 OdB max. Input Impedance 50 ohm Output Impedance 50 ohm

Specifications Operating Voltage: 12V Operating Frequency Range: 40MHz to 860MHz ± 1dB Maximum Output Voltage: 100mV — 60dB IMD Gain: 18dB Noise: 6dB

OPERATIONAL AMPLIFIERS HANDY REFERENCE GUIDE

Type	(nA) (Volts/V) (I 300 15k 10 15k 1500 15k 800 15k 7 25k 8 25k 0.15 15k 2000 36 dB 0.5 50k 0.5 20k 2000 15k 500 160k 500 100k 7 25k 8 25k 500 15k 500 15k 500 15k 8 25k	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Min Max (dB) (V) (V) (dB) (V) (V) (dB) (V) (V) (DB)	\begin{array}{c c c c c c c c c c c c c c c c c c c	Frequency Compen No No No No Yes Yes Yes Yes No No Yes Yes Yes No Yes Yes Yes Yes Yes Yes Yes Yes Yes
LM301 G.P. Amplifier 10 70 LM308 G.P. Amplifier 10 15.50 LM709 G.P. Amplifier 10 500 LM741 G.P. Amplifier 7.5 300 TLO71 JFET Lo Noise 10 0.2 LF351 JFET Lo Noise 10 0.1 TLC251. Prog. Lo Power CMOS 10 0.1 TLC251. Prog. Lo Power CMOS 10 0.1 CA3100 Wide band Amp. 5 400 CA3130 MOSFET Input 15 0.3 CA3140 Noise 5 400 DUAL OP AMPS LM381 Lo Noise 10 0.2 LF353 JFET Lo Noise 10 0.2 LF353 JFET Lo Noise 10 0.2 LF353 JFET Lo Noise 10 0.1 CUAD OP AMPS LM324 G.P. Amplifier 9 150 G.P. Amplifier 9 150 G.P. Amplifier 9 150 G.P. Amplifier 10 0.2 LF347 JFET Lo Noise 10 0.2 LF348 JFET LO Noise 10 0.2 LF349 JFET LO Noise 10 0.2 LF351 JFET LO Noise 10 0.2 LF352 JFET LO Noise 10 0.2 LF353 JFET LO Noise 10 0.2 LF354 JFET LO Noise 10 0.2 LF355 JFET LO Noise 10 0.2 LF356 JFET LO NOISE 10 0.2 LF357 JFET LO NOISE 10 0.2 LF357 JFET LO NOISE 10 0.2 LF357 JFET LO NOISE 10 0.2 LF358 JFET LO NOISE 10 0.2 LF358 JFET LO NOISE 10 0.2 LF357 JFET LO NOISE 10 0.2 LF358 JFET LO NOISE 10 0.2 LF357 JFET LO NOISE 10 0.2 LF358 JFET LO NOISE 10	10	1 0.3 ±13 1 0.3 ±12 1 0.5 ±13 3 13 ±12 4 13 ±12 0.7 0.6 ±7.8 38 25 ±9 4 10 ±6 (Vs = ±8) 10 6 ±12 15 ±12 15 ±12 3 13 ±12 4 13 ±12 1 ±12 3 13 ±12 4 13 ±12 3 13 ±12 4 13 ±12 1 ±12 3 13 ±12 1 ±12 3 13 ±12 1 ±12 3 13 ±12 1 ±12 3 13 ±12 1 ±12 3 13 ±12 1 ±12 3 13 ±12 1 ±12 3 13 ±12 1 ±12 3 13 ±12 1 ±12 3 13 ±12 1 ±12 3 13 ±12 1 ±12 3 13 ±12 1 ±12 3 13 ±12 1 ±12 3 13 ±12 1 ±12 3 13 ±12 1 ±13 3 13 ±12 1 ±12 3 13 ±12 1 ±12 3 13 ±12 1 ±12 3 13 ±12 1 ±13	### ### ### ### #### #################	(Note 2)	No No Yes Yes Yes Yes No No Yes No Yes Yes Yes Yes Yes Yes
NE5534	2000 15k 500 160k 500 100k 7 25k 8 25k 500 15k 500 15k 7 25k 8 25k 8 25k Note 1 : Supply cur	10 6 ±12 15 ±12 15 ±12 3 13 ±12 4 13 ±12 1 * ±13 3 1 ±12 3 13 ±12 4 13 ±12 2.5 20 10	±3 ±22 70 9 to 40 9 to 40 ±18 70 ±18 70 ±18 70 ±18 70 ±18 70 ±18 70 4 36 •	±0.5 8 16 16 16 ±30 5 ±30 6.5 32 3 ±30 ±30 10	Yes Yes Yes Yes Yes
LM381 Lo Noise LM382 Lo Noise TL072 JFET Lo Noise TL072 JFET Lo Noise QUAD OP AMPS LM324 G.P. Lo Noise 10 0.1 UA4136 G.P. Lo Noise 10 0.2 TL074 JFET Lo Noise 10 0.2 LF347 JFET Lo Noise LF347 JFET Lo Noise LM3900 Norton Amp. Package and Pin Connections *Not specified FREQ COMP A OFFSET NULL IN- IN- OFFSET OFFSET OFFSET OFFSET OFFSET	500 100k 7 25k 8 25k 500 15k 500 15k 7 25k 8 25k 200 2.8k	15	9 to 40 ±18 70 ±18 70 ±18 70 ±18 70 ±18 70 ±18 70 4 36 *	±30	Yes Yes Yes
LM324 G.P. Amplifier 9 150 6 200 71.074 JFET Lo, Noise 10 0.2 10 0.2 10 0.2 10 0.2 10 0.2 10 0.2 10 0.2 10 0.2 10 0.2 10 0.2 10 0.01 10 10 10 10 10	500 15k 7 25k 8 25k 200 2.8k	3 1 ±12 3 13 ±12 4 13 ±12 2.5 20 10	±18 70 ±18 70 ±18 70 4 36 *	±30 ±30 10	
FREQ COMP A OFFSET NULL 1 IN- 2 IN+ 3 FREQ COMP B OFFSET NULL 1 FREQ COMP OFFSET NULL 1 FREQ COMP OFFSET NULL 1 FREQ COMP B OFFSET NULL 1		rrent for all channels of amplific	(±2) (±18) !	* 10	Yes Yes Yes Yes
COMP A OFFSET NULL IN-2 IN+3 FREQ COMP OFFSET NULL 7 V+ IN+3 FREQ COMP OFFSET NULL 1 V- IN-2 IN	FREQ COMP		er in the package N	ote 2: Inputs have shunt diodourrent must be limited.	protection,
OFFSET 1 8 NC FRED COMP A/ OFFSET 1 OFFSET 1	8 7 V+ (8) OUT (9) OFFSET NULL STROBE FREE FREE FREE FREE FREE FREE FREE FR	NC 1 COMP 1 2 GUARD 3 IN- 4 IN+ 5 GUARD 6 V- 7	14 NC N 13 NC N 12 COMP 2 INPUT COMP 11 V+ IN 10 OUT IN 9 NC V 8 NC N	C 2 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NC INPUT COMPB V+ OUT OUT COMP
NULL IN+ 3 + 6 OUT V- 4	7 V+ 6 OUT 5 OFFSET NULL	OUT1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	709 - 14 OUT4 IN2 - 13 IN4- IN2	2+ 2 - 1;	_
NULL NI 1	8 STROBE 7 V+ 6 OUT 5 OFFSET	IN1+ 3 V+ 4 IN2+ 5 IN2- 6 OUT2 7	12 IN4+ OUT 11 V- OUT 10 IN3+ IN1- 9 IN3- IN1- 8 OUT3 V-	2 3 12 14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	о отз
OUT1 1 8 V+ CA3140 IN1- 2 7 OUT2 IN1+ 3 6 IN2-		LM324, TL-074, LF347	UA413	36	
V- 4 5 IN2+ IN1+ 1 IN2+ 2 IN2+ 2 IN2+ 3 IN2-	14 V+ 13 IN3+ 12 IN4+ 11 IN4- 10 OUT4 43 9 OUT3 8 IN3-	+IN 1 1		D 4 1	GAIN CRL 2 GAIN Vcc GAIN CTL 2

LINEAR DEVICE PIN CONNECTIONS



ZENER DATA

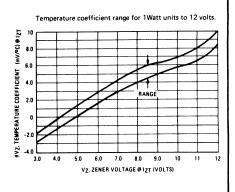
Type No. ▲	Type No. ▼	Nominal Zener Voltage	Test Curr	
400mW Series	1Watt Series	V _z @ I _{ZT} (V)	400mW	1W
1N746	1 N4728	3.3	20	
1N747	1 N4729	3.6	20	
1N748	1N4730	3.9	20	
1N750	1 N4732	4.7	20	53
1N751	1 N4733	5.1	20	49
1N752	1 N4734	5.6	20	45
1N753	1N4735	6.2	20	41
1N754.1N957	1 N4736	6.8	18.5	37
1N755,1N958	1 N4737	7.5	16.5	34
1N756.1N959	1 N4 738	8.2	15	31
1N757,1N960	1 N4 739	9.1	14	28
1N758.1N961	1 N4740	10	14	25

▲ DC Power Dissipation: 400milliwatts @ 50°C Ambient (Derate 3.2mW/°C above 50°C)

Type No. ▲ 400mW Series	Type No. ▼ 1Watt Series	Nominal Zener Voltage V _z @ I _{ZT} (V)	Test Curr I _{ZT} (mA 400mW	
1N962	1 N4 74 1	11	12.5	23
1N759.1N963	1 N4742	12	11.5	21
1N964	1 N4743	13	10.5	19
1N965	1 N4744	15	9.5	17
1N966	1 N4745	16	8.5	15.
1N967.1N4112	1 N4 746	18	7.8	14
1N968	1 N4747	20	7	12.5
1N969	1 N4 748	22	6.2	11.5
1N970	1 N4 749	24	5.6	10.5
1N971	1 N4 750	27	5.3	9.5
1N972	1 N4 751	30	5.3	8.5
1N973	1 N4 752	33	5.2	7.5

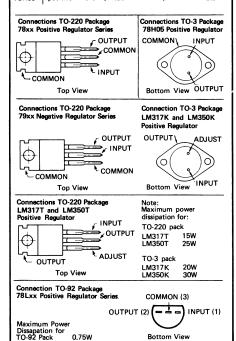
▼DC Power Dissipation: 1Watt @ 50°C Ambient) (Derate 6.67mW/°C above 50°C)

This range will dissipate up to 3W @ 75°C with 10mm lead length as heatsink



THREE TERMINAL REGULATORS

Туре	Polarity	Case		OU1	max	I _{OUT} (nom)	Dropout Voltage
78L05 78L05 78L09 78L12 78L15 7805 7806 7809 7812 7815 7824 7915 LM317K LM317T LM350K	positive negative negative negative positive positive positive positive positive positive positive positive	TO-92 TO-92 TO-92 TO-92 TO-220 TO-220 TO-220 TO-220 TO-220 TO-220 TO-220 TO-3 TO-20 TO-3	4.8 5.95 8.64 11.5 14.4 4.8 5.75 8.64 11.5 14.4 23 -4.8 -11.5 -14.4 adj. adj.	5 6.2 9 12 15 5 6.0 9 12 15 25 -12 -15 1.2	5.2 6.45 9.36 12.5 15.6 5.2 6.25 9.36 12.5 15.6 25 -5.2 -12.5	100mA 100mA 100mA 100mA 100mA 1A 1A 1A 1A 1A 1A 1A 1A 1A 1A 1A 1A 1A	1.7 1.7 1.7 1.7 2 2 2 2 2 2 2 1.1 1.1
LM350T 78H05	positive	TO-220 TO-3			to 33 5.25	3A	2.5
701100	positive	1103	7.00	J	5.25	, ,,	2.5



VOLTAGE REGULATORS

These voltage regulators almost make power supply building unnecessary since they require only a filtered DC voltage input, they are essentially indestructible (if used within manufacturer's specs.) because of internal current limiting and thermal shutdown should a short occur. They are ideally suited to local, on board regulation simplifying power supply distribution systems. Excellent for TTL and project supplies. With the advent of microprocessors and microcomputers, these regulators have been used extensively in power supplies for such systems. This type of use typifies their versatility and reliability. Another area of supply regulation use is with analogue operational amplifiers.

These circuits usually call for both + and - complementary rail voltages. These three terminal devices ideally suit such requirements. Both positive and negative devices will give a current output in excess of 1A and foldback current limiting occurs if the output is shorted.

INCREASE THE OUTPUT VOLTAGE OF A 3 TERMINAL VOLTAGE REGULATOR

Regulators like the 7805 and the 7905 can give higher output if two additional resistors are configured into the circuit as shown below.

 $R1 = V_{R}/0.02$

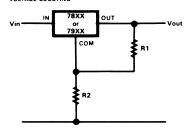
 $R2 = V_B/0.025$

Where V_R is the normal regulated voltage from the IC and V_B is the amount by which the regulator has to be boosted above V_R . Some examples are given below:

V _{out}	Regulator	R1	R2
6	5V	220	39
9	5V	220	150
13.8	12V	560	68
18	15V	680	120

To make a variable regulator, use a potentiometer as R2.

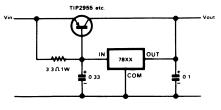
VOLTAGE BOOSTING



INCREASING THE OUTPUT CURRENT OF THE REGULATOR

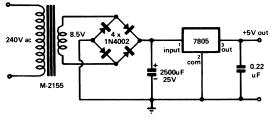
By adding a PNP power transistor to a positive regulator, the output current can be increased above the normal rating of the regulator itself. The circuit shown below can be expected to deliver in excess of 4A with the pass transistor mounted on a heatsink. The same conditions can also be implemented with a negative regulator, the difference being the polarities of components, the pass transistor in this case would be an NPN type such as a 2N3055.

CURRENT BOOSTING



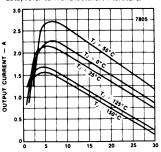
TYPICAL POWER SUPPLY USING A 3 TERMINAL REGULATOR

The same basic circuit can be used with other regulators of different voltages, only the input ac voltage has to be changed to accommodate the the requirement of that regulator. eg. If an output of 12V was the requirement, a 7812 IC could be used with an ac input voltage of 15V.



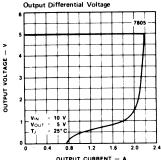
TYPICAL CHARACTERISTICS OF THE 7805 3 TERMINAL REGULATOR

The other members of this 78xx/79xx family have similar characteristics to those shown. For other data, refer to manufacturers literature.

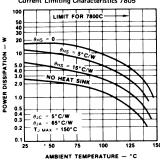


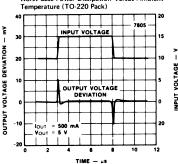
INPUT/OUTPUT DIFFERENTIAL

Peak Output Current as a Fuction of Input to



Current Limiting Characteristics 7805





555 TIMER (LM/NE555 Bipolar, TLC555 CMOS)

The 555 Timer is a highly versatile low-cost IC specifically designed for precision timing applications. It can also be used in monostable multi-vibrator, astable multivibrator, and Schmitt trigger applications.

The 555 has many attractive features. It can operate from 4.5V to 16V. Its output can source (supply) or sink (absorb) load current up to a maximum of 200 mA and so can directly drive loads such as relays, LED's, low-power lamps, and high impedance speakers. When used in the timing' mode, the IC can readily produce accurately timing periods variable from a few microseconds to several hundred seconds via a single R-C network. Timing periods are virtually independent of supply rail voltage, have a temperature coefficient of only.05% per °C, can be started via a TRIGGER command signal, and can be aborted by a RESET command

signal.

When used in the monostable mode, the IC produces output pulses with typical rise and fall

accurately controlled with two external resistors and one capacitor.

times of a mere nS.
When used in the astable mode both the frequency and the duty cycle of the waveform can be

CMOS 555
Due to its high impedance inputs (typically 10 12 n), it is capable of producing accurate time delays and oscillations while using less expensive, smaller timing capacitors than NE555. Like the NE555, the TLC555 achieves both monostable (using one resistor and one capacitor) and the NESSS, the ILUSSS achieves both monostation (using one resistor and one capacitor) and astable (using two resistors and one capacitor) operation. In addition, 50% duty cycle astable operation is possible using only a single resistor and one capacitor. The TLC555 will operate at frequencies up to 2 MHz and is fully compatible with CMOS, TTL, and MOS logic. While the complementary CMOS output is capable of sinking over 100mA and sourcing over 10mA, the TLC555 exhibits greatly reduced supply current spikes during output transitions.

This minimises the need for the large decoupling capacitors required by the NE555.

Time Delay vs R_A and C

Rasic Astable Circuit

Basic Monostable Circuit

+5V TO +15V

MONOSTABLE OPERATION

In the monostable mode, the timer functions as a one-shot, Referring to circuit the external capacitor is initially held discharged by a transistor inside the timer.

When a negative trigger pulse is applied to lead 2, the flip-flop is set, releasing the short circuit across the external capacitor and drives the output HIGH. The voltage across the capacitor, increases exponentially with the time constant t = R1C1. When the voltage across the capacitor equals 2/3 VCC, the comparator resets the flip-flop which then discharges the capacitor rapidly and drives the output to its LOW state.

The circuit triggers on a negative-going input signal when the level reaches 1/3 VCC. Once triggered, the circuit remains in this state until the set time has elapsed, even if it is triggered again during this interval. The duration of the output HIGH state is given by t = 1.1 R1C1. The timing interval is independent of

When Reset is not used it should be tied high to avoid any possibility of false triggering.

ASTABLE OPERATION

When the circuit is connected as shown it triggers itself and free runs as a multivibrator. The external capacitor charges through R1 and R2 and discharges through R2 only. Thus the duty cycle may be precisely set by the ratio of these two resistors

In the astable mode of operation, C1 charges and discharges between 1/3 VCC and 2/3 VCC. As in the triggered mode, the charge and discharge times and therefore frequency are independent of the supply voltage.



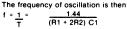
t1 = 0.693 (R1 + R2) C1

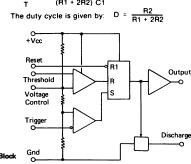
and the discharge time (output LOW) by:

t2 = 0.693 (R2) C1

Thus the total period T is given by

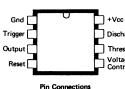
T = t1 + t2 = 0.693 (R1 + 2R2) C1

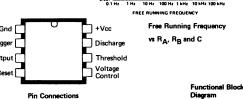




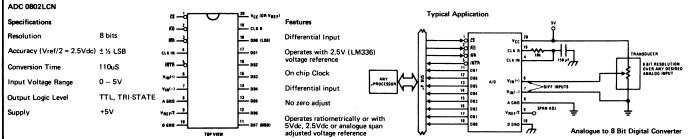
Vcc = 15V unless otherwise stated		LM/NE555C Limits			TLC555C Limits		;
Parameters	Conditions	Min	Тур	Max	Conditions	Min Typ	Max
Supply Voltage	$(R_L = \infty, Vop = low)$	4.5		16V	(R _L = ∞, Vop = low)	2	18
Supply Current				15mA		360uA	
Power Dissipation				600mW		6	00mW
Threshold Voltage	(% of Vcc)		67%		(% of Vcc)	67%	
Threshold Current			0.1	0.25uA	(Vcc = 5V)	10pA	
Trigger Voltage	(% of Vcc)		33%	,	(% of Vcc)	33%	
Trigger Current			0.5	ıA	(Vcc = 5V)	10pA	
Reset Voltage		0.4	0.5	1٧		0.7V	
Reset Current			0.1	0.4 uA	(Vcc = 5V)	10pA	
High Level Output	(IoI = 100mA)	12.7	5 13.3	/	(IoI = 10mA)	12.7V	
Low Level Output	(IoI = 100mA)		2	2.5V	(IoI = 100mA)	1	
Output Current	Sink Source			200mA 200mA		100mA 10mA	
Initial Error of Tin	ning Interval		1%			1%	

FUNCTION TABLE DISCHARGE SWITCH TRIGGER VOLTAGE THRESHOLD VOLTAGE OUTPUT RESET Irrelevant On <1/3 Vcc Irrelevent High On >1/3 Vcc >2/3 Vcc Low <2/3 Vcc As previously established

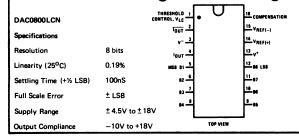




ADC0802 8-Bit µP Compatible A/D Converter



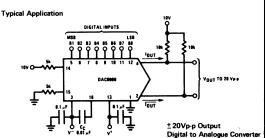
DAC0800 8-Bit Digital-to-Analog Converter



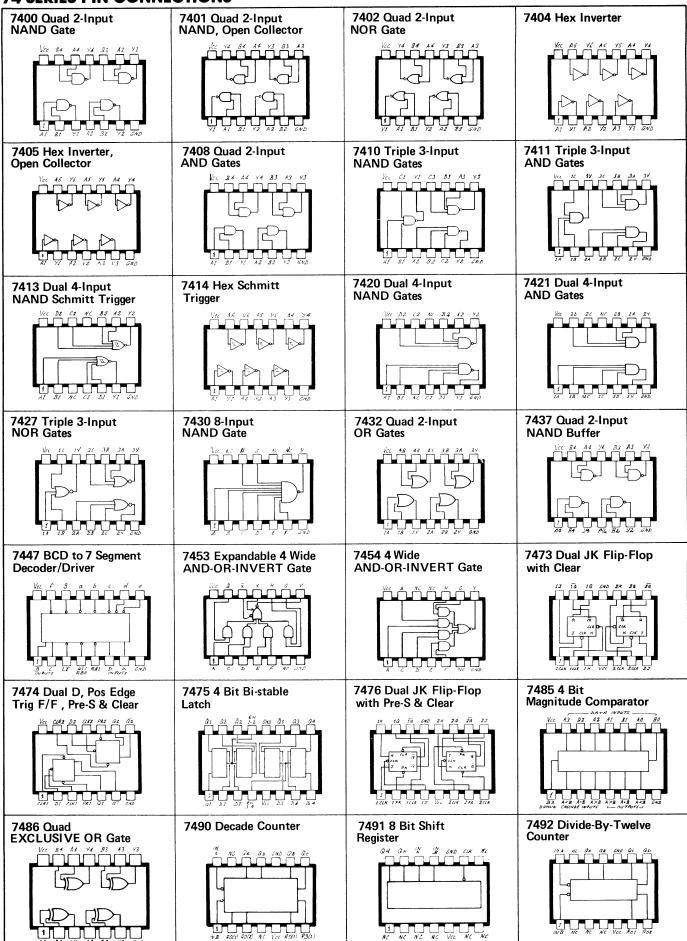
Interface to TTL, CMOS, PMOS and others Complementary current outputs 2 Quadrant wide range multiplying capability

Low power cosumption

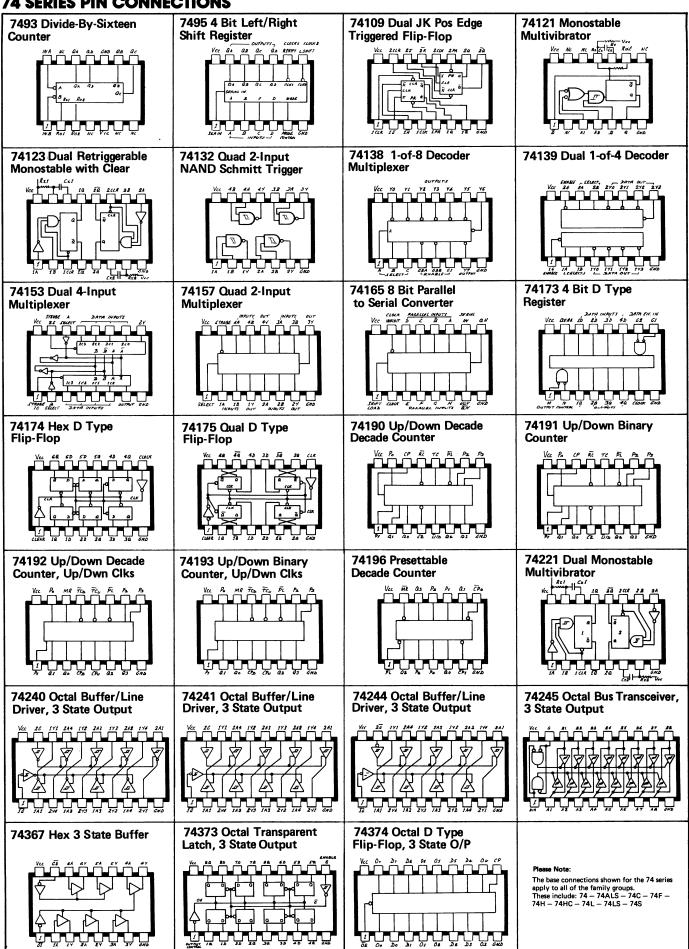
33mW @ ±5V



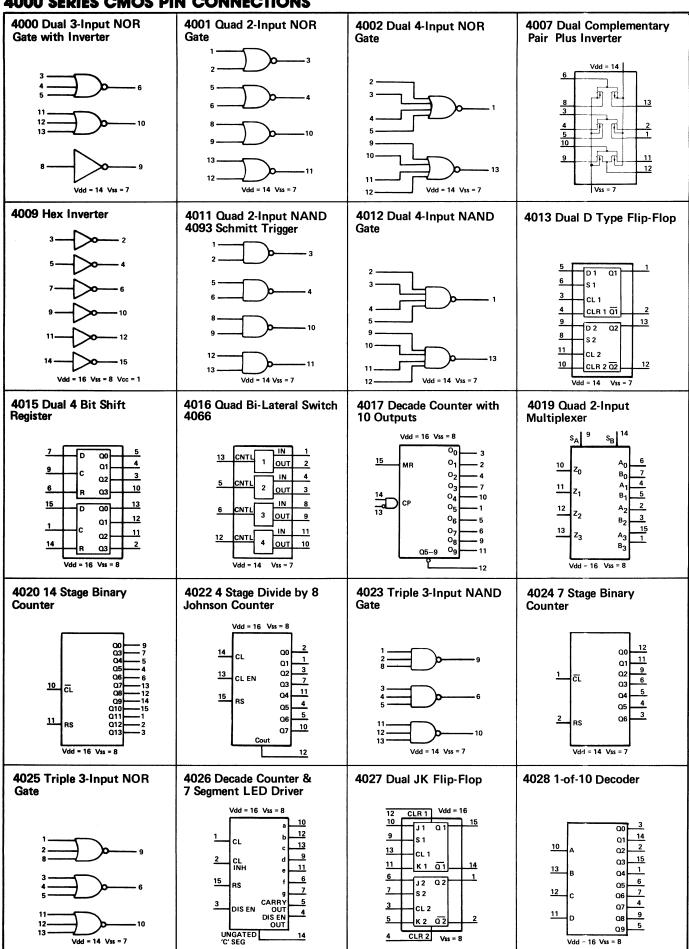
74 SERIES PIN CONNECTIONS



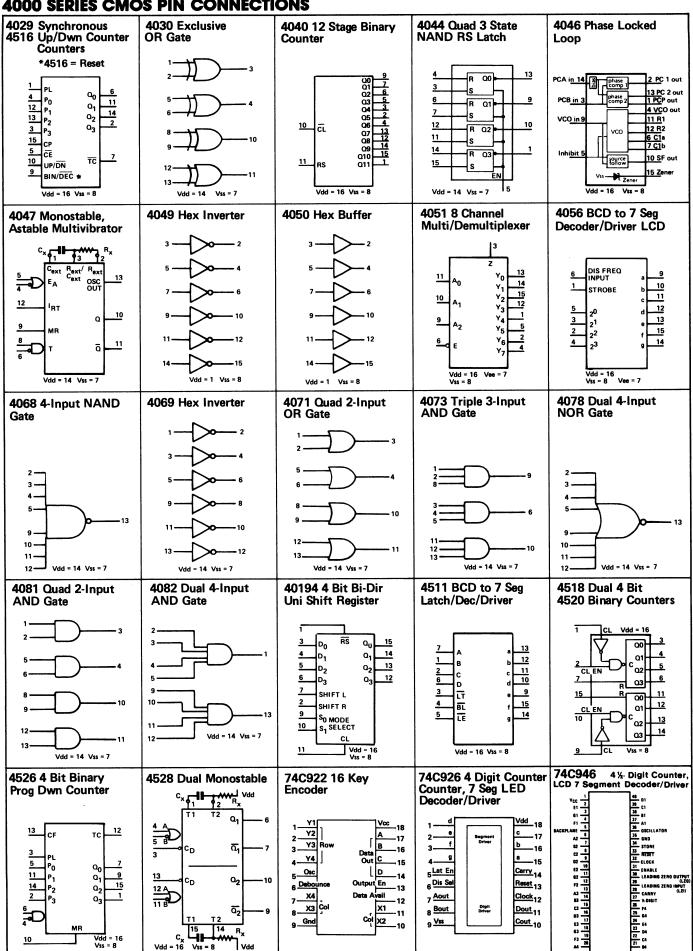
74 SERIES PIN CONNECTIONS



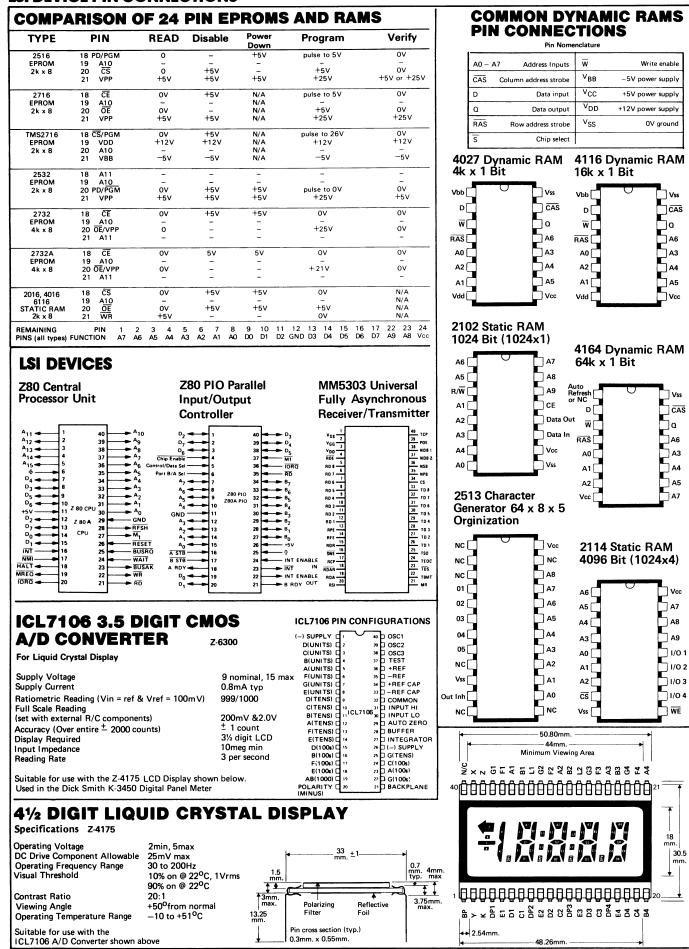
4000 SERIES CMOS PIN CONNECTIONS



4000 SERIES CMOS PIN CONNECTIONS



LSI DEVICE PIN CONNECTIONS



SIMPLE DIGITAL CIRCUITS

GATES

SYMBOL	CODE
OUTPUT "AND" GATE	Output is "on" only when all inputs are "on". Output is "off when any or all inputs are "off".
INPUTS OUTPUT	Output is "off" only when all inputs are "on". Output is "on" when any or all inputs are "off".
INPUTS OUTPUT	Output is "on" only when all inputs are "off". Output is "off" when any or all inputs are "on".
OUTPUT "OR" GATE	Output is "off" only when all inputs are "off". Output is "on" when any or all of the inputs are "on".

INVERTERS

SYMBOL	CODE		
INPUT OUTPUT INVERTER	Output is "on" only when the input is "off". Output is "off" only when the input is "on".		

FLIP-FLOPS

A flip-flop can be compared with a push button switch connected to two lamps. When the button is pushed and released, one of the lamps will turn 'on' and the other 'off'. If the button is again pushed and released, the lamp that was 'off' will

now turn "on" and the lamp that was "on" will turn "off". There are many different types of flip-flops, but they all operate basically in the same way. The difference is in the number and type of inputs.

SYMBOL	CODE
OUTPUTS OF FLIP.FLOP	"Q" output is "on" when " \overline{Q} " output is "off". "Q" output is "off" when " \overline{Q} " output is "on". Outputs change when the input is turned "off".

LATCH

A latch is a flip-flop designed to store information until it is needed. It has an extra latch input. When the latch is turned on, the information on the input will be transferred to the "Q" output.

When the latch is turned "off", the information that was on the input at the time the latch was turned off, will be stored on the "Q" output.

SYMBOL	CODE
LATCH INFOR-	"Q" output will follow the information input. "Q" output will always be the opposite of the "Q" output.

COUNTERS

SYMBOL	CODE		
OUTPUTS 1 2 4 8 RESET "O" INPUT	As the input is turned "on" and "off" the count is accumulated on the outputs in either binary or decimal form depending on circuit. Counters are easily cascaded by using the highest output as the next input. When full the counter will automatically reset to zero. To use as a "N" divider the reset pin is connected to the required digit plus one.		

CIRCUIT LAWS

OHM'S LAW

The relationship between voltage, current and resistance in a circuit is defined by Ohm's law, which may be simply stated by the formula:

$$\mathsf{E} = \mathsf{I} \times \mathsf{R}$$

where E is in volts, I is in amps and R is in ohms. This can be turned around to look like:

$$R = \frac{E}{i}$$

POWER IN A CIRCUIT

When a current passes through a component, energy is given off in the form of heat. Normally, we associate resistors with this action: that's part of their job. We often need to know how much power is being given off by a resistor – and we find this out by using the formula:

$$W = E \times I$$

where W is in watts, E is in volts and I is in amps. This formula too can be turned around if required:

$$E = \frac{W}{W}$$

$$I = \frac{W}{E}$$

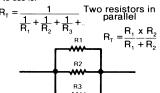
RESISTORS IN SERIES

Resistors in a series circuit are simply added together to find the total resistance. In other words, a 10 ohm, 150 ohm and 1000 ohm-resistor connected in series would be the equivalent of a single 1.160 ohm resistor. The formula is:

$$R_1 = R_1 + R_2 + R_3 + \dots$$

RESISTORS IN PARALLEL

Resistors in a parallel circuit are a little more difficult. The formula to use is:



CAPACITORS IN SERIES

Capacitors in series, on the other hand, are similar to resistors in parallel. You add the reciprocals:

$$C_{T} = \frac{1}{\frac{1}{C_{1}} + \frac{1}{C_{2}} + \frac{1}{C_{3}}} + \frac{\text{Two capacitors in series}}{C_{T} = \frac{C_{1}}{C_{1}} \frac{x}{+ \frac{C_{2}}{C_{2}}}}$$

CAPACITORS IN PARALLEL

Capacitors behave exactly the opposite to resistors; when capacitors are in **parallel**, you add them;

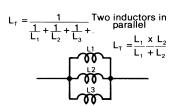
$$C_7 = C_1 + C_2 + C_3 + \dots$$

INDUCTORS IN SERIES

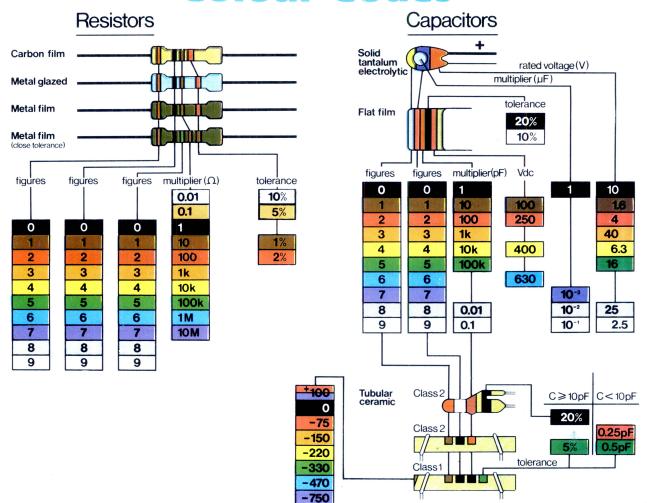
$$L_{T} = L_{1} + L_{2} + L_{3} + \dots$$

$$- \frac{L_{1}}{00} - \frac{L_{2}}{00} - \frac{L_{3}}{00}$$

INDUCTORS IN PARALLEL



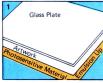
Colour Codes





PROCESSING PROCEDURE

This procedure is suitable for use with the Dick Smith Scotchcal Black Aluminium Sheet Cat H-5694 Scotchcal Red Aluminium Sheet Cat H-5692 Scotchcal Plastic Exposure Film Cat H-5690



Prepare to expose photosensitive material.

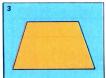
Negative or positive translucent or transparent artwork facing up. For 8007 reversing film, emulsion must be down



you have the fresh side out.



Photosensitive surface emulsion



Place exposed photosensitive material on a level surface. Work in safelight conditions.



Wrap some cloth or similar soft material around a block to make a developing pad.



ir out a small amount of 8500 'SCOTCHCAL' developer onto the exposed material or film. Spread out evenly with a light sweeping motion.



By using a light 'figure 8' motion on the pad, the unwanted surface emulsion can be removed to a point where most has disappeared.



Turn the cloth on the pad over so



light circular motion to remove all unwanted emulsion.



Drying Wrap a fresh clean cloth around the developer pad and gently wipe any remaining developer from the any remaining developer from the surface. The job is now complete. Proceed to step 11 if the material does not need surface protection. This is the end of the process for exposure film.



surface protection, the surface can be sprayed with Dick Smith Cat. N-1011 Clear Acrylic Spray or 'Scotchcal' 3900 or 3930 Sprays.



Apply the label or plate to a clean surface. Peel back the paper liner from the label. Carefully position the label over the surface that it is to be mounted. Press one edge in place and apply remainder with a soft cloth using firm overlapping strokes.

Do you need a darkroom or special

Do you need a darkroom or special equipment for exposure? A darkroom is not necessary, all processing can be done in low level incandescent light, tight keep clear of sunlight and fluorescent light. You do need an ultra-violet light source. A bank of 2 or 3 Philips Actinic Blue TLA20W/05 or Sylvania F20T12BL 20 Watt fluorescent tubes assembled into a suitable contact printer frame can be used. The exposure may take anything from 3 to 15 minutes with this setup. If you don't take anything from 3 to 15 min-utes with this setup. If you don't want to make up this equipment, sunlight will do perfectly, this may require anything from 30 seconds to 7 minutes.

RESISTORS

Resistors are usually so small it is impractical to try and print each one with its value, so they are marked with a code printed on them in bands of different coloured paint. These bands give us the resistor's value

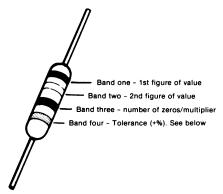
Depending on the tolerance of the resistor there will be either 4 bands (5% E24 Series) or 5 bands (1%% E96 series).

How to read common 5% resistors (4 bands):

Start with the band closest to one end or, if it is difficult to work out, the band furthest away from the gold or silver band. Take the resistor shown below: let's say that the first band is orangefrom the table this means three. If the second band is white, then its value is 9, from the table. And finally if the third band is brown we have a value of 2, so we add one zero to the first two figures: 3, 9 and 0 - or 390 ohms.

The fourth, or tolerance band, is silver: 10%. Therefore, the resistor is 390 ohms, 10% tolerance (or somewhere between 390 -10% and 390 +10%, or 351 and 429 ohms). This is more than adequate for most circuit requirements. Resistors are available which are 'spot on' in value – however, these are not required in most circuits, and are often very, very expensive.

WHAT THEY MEAN:



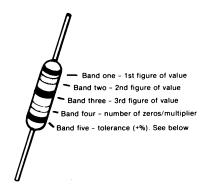
Tolerance band colours: Red 2%, Gold 5%, Silver 10%, No band 20%.

Note how the bands are closer to one end of the resistor

1% Resistors (5 bands)

These are read in a similar manner. However, the first three bands give a three figure value. The fourth band gives the number of zeros/multiplier and the fifth is the tolerance.

WHAT THEY MEAN:



Tolerance band colours: Brown 1%, Red 2%, Gold 5%, Silver 10%, No band 20%.

Some circuits show capacitor and resistor values as straight figures – e.g. 4.7 pF. Others replace the decimal point with the first letter of the sub-multiple (e.g. 4p7 is the same as 4.7pF). Similarly with resistors: 6k8 means the same as 6.6k.

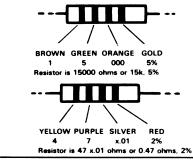
PREFERRED VALUES

The system of preferred component values was developed to provide a logical progression whereby each higher value always represents an increase by the same factor or percentage, according to the percentage tolerance on which the table is based. (The mathematical term is "geometric progression".)

Values given for each series appear in every decade.

serie	s E12 (1	0%)					
10	12	15	18	22	27	33	39
47	56	68	82				
serie	es E24 (5	%)					
10	11	12	13	15	16	18	20
22	24	27	30	33	36	39	43
47	51	56	62	68	75	82	91
	s E96 (1						
100	102	105	107	110	113	115	118
121	124	127	130	133	137	140	143
147	150	154	158	162	165	169	174
178	182	187	191	196	200	205	210
215	221	226	232	237	243	249	255
261	267	274	280	287	294	301	309
316	324	332	340	348	357	365	374
383	392	402	412	422	432	442	453
464	475	487	499	511	523	536	549
562	576	590	604	619	634	649	665
681	698	715	732	750	768	787	806
825	845	866	887	909	931	953	976

RESISTOR VALUE EXAMPLES



METRIC UNITS & CONVERSIONS

Throughout this book, and indeed, most electronic publications, metric multipliers are used to simplify and shorten component values, etc.

For example, capacitance is measured in Farads – but the Farad is a huge unit of measurement, much too large to be of any use in expressing capacitor values. So we use a suitable metric sub-multiple to save a lot of figures. Instead of saying, for example, .0000000000001 Farads we say 1 pico Farad (1 pF).

We have used only micro Farads (uF) and pico Farads (pF) in this book; however, some publications use the abbreviation nano Farad (nF) so you should get to know these eventually, too.

Abbreviation	Means		
р	pico	.00000000001	10 ^{- 12}
n	nano	.00000001	10 ⁻⁹
u	micro	.000001	10 ⁻⁶
m	milli	.001	10 ⁻³
_	UNIT	1	10 ⁰
k	kilo	1 000	10 ³
M	mega	1 000 000	10 ⁶

1000 pico units = 1 nano unit

1000 micro units = 1 milli unit

1000 units = 1 kilo unit

1000 nano units = 1 micro unit 1000 milli units = 1 unit

1000 kilo units = 1 mega unit

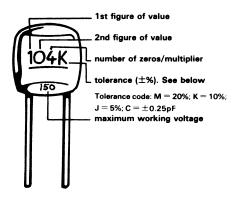
CAPACITORS

Most capacitors will have their value printed on them. However, there are a number of capacitor manufacturers who use the 'IEC' code. This code is a numerical code, but works in a similar way to the resistor colour code: two figures followed by a multiplier. There is often a single letter code showing tolerance.

The code is worked out in picofarads, so you may have to use the appropriate metric multiplier.

A capacitor may have a code '104K'. This decodes as follows - 0.1uF, 10%. The first two figures give us 10, the third figure gives us 0000, and the latter 10%. Therefore, the capacitor is 10 0000pF, 10%. We normally express this as 0.1uF - capacitors with a value below 001uF are expressed in picofarads.

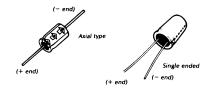
There may be a further figure marked - this would be the voltage rating of the capacitor (the maximum voltage at which you can use that capacitor).



CAPACITORS AND THEIR USES

Aluminium Electrolytic Capacitors

Ideal for use in filtering or smoothing rectified A.C. energy storage as in Power Supplies. Also used for bypassing and coupling in audio applications and the timing element for non critical circuits.



Solid Tantalum Capacitors

Lower leakage High reliability, long life and offer a size advantage.

Ceramic Capacitors

Offer low cost and high capacitance in a small physical volume. There are generally two types:

For tight tolerance and high stability in radio frequency (RF) tuned circuits.

Bypass capacitors in RF and in digital circuits for spike

suppression and power supply filtering.

Paper Capacitors

An original construction of capacitors for use in A.C. circuits. Still used for power factor correction in mains supply applications. For example in Lighting and electric motors.

Polyester Capacitors

Lowest cost, most widely used for general purpose application.

Polycarbonate Capacitors

Offer low temperature coefficient and lower dielectric losses at high frequency. Most often chosen for temperature stability characteristics.

Polystyrene Capacitors

Usually chosen for applications requiring tight tolerance coupled with high stability. Predictable temperature coefficient used in conjunction with particular ferrite coils makes highly stable tuned circuits or oscillators.

Polypropylene Capacitors

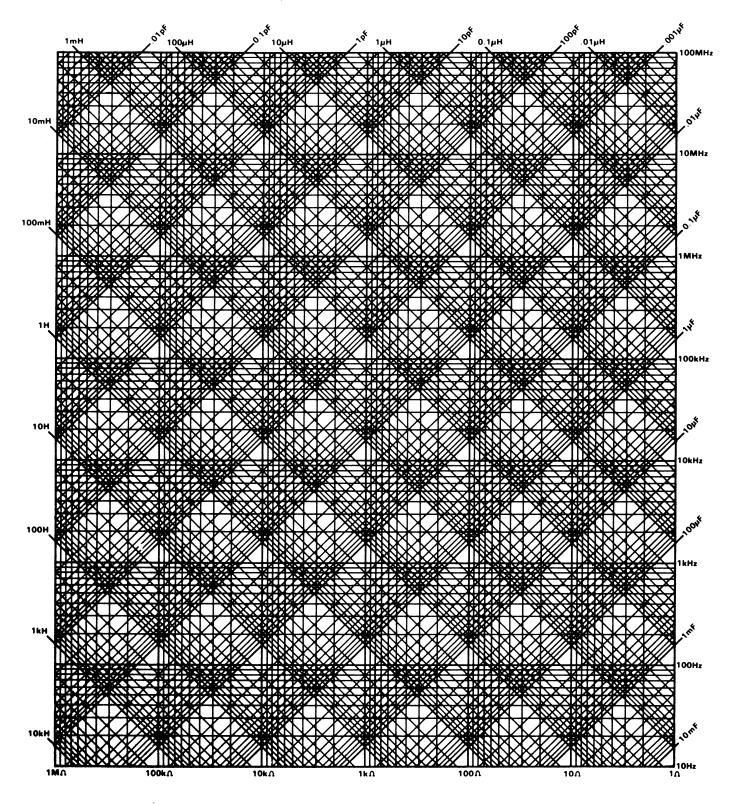
Offer very low dielectric losses rivalling polystyrene. Suitable for high power inverters and converters and T.V. deflection.

REACTANCE-FREQUENCY CHART FOR CAPACITORS, INDUCTORS & TUNED CIRCUITS

To find the reactance of a capacitor at a given frequency, follow the 45° capacitance value line until it intersects the horizontal frequency line, then read downwards to the ohms scale at the bottom. The reactance of an inductor can be read in a similar manner.

The chart can also provide information about resonant circuits. For example, locate where particular values of L & C intersect and read off the resonant frequency. If frequency is known and either L or C, find the intersect and read off the remaining value. Again, by following along a particular frequency line, a variety of LC options for resonance can be determined.

To design simple 6dB/octave speaker crossover networks, follow the appropriate resistance line up to where it intersects the desired crossover frequency and read off the required values of L & C.



SOME AUDIO TERMS EXPLAINED

The specification for the performance of an audio amplifier system will often include terms using decibels above or below (±) some standard, usually maximum power output at some stated amount of harmonic distortion. Using the chart it is possible to see what these figures mean in terms of actual power. Since negative values or losses are frequently involved the following table will prove a valuable addition to the chart.

Loss -dB	Power Ratio (approx.)	V or i Ratio (approx.)
0	1.0	1.0
1	0.8	0.9
2	0.6	0.8
, 3	0.5	0.7
4	0.4	0.6
5	0.3	0.56
6	0.25	0.5
10	0.1	0.3
15	0.03	0.18
20	0.01	0.1
30	0.001	0.03
40	10-⁴	0.01
50	10-5	0.003
ł .		

Power Bandwidth: Typically 30Hz to 20 000Hz, at which points the amplifier is only capable of delivering half its rated output without distortion, regardless of input level.

Frequency Response: Typically stated as 20Hz to 20000Hz ± 1dB which means a reduction to 0.8 (8/10ths) of maximum power output at these limits.

Signal to Noise Ratio: Typically -80dB relative to maximum power. This gives a ratio of 100,000,000 to 1. If the maximum power output of the amplifier is 100 watts (100,000,000 uW) the noise level at maximum volume should not exceed one micro-

Tone controls or Filters: These may have their performance specified by the altered response they provide at the top or bottom of the audio range, such as "from +15 to -15dB at 50Hz and +13 to -15dB at 10000Hz", for variable tone control

METER SHUNTS & MULTIPLIERS

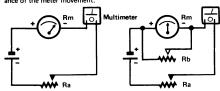
FORMULAS FOR USE WITH DC METER MOVEMENTS

The basic instrument for testing current and voltage is the moving coil meter. The movement can be either be a milliammeter or a microammeter. A resistor in series will convert it to a DC othereter or a resistor in parallel will convert it to a DC ammeter.

First, the resistance of the meter movement has to be found.

Connect a variable resistor (Ra) in series with the movement, a mult-Connect a variable resistor (Ra) in series with the movement, a multi-meter (set to measure current equal to or greater than the movement itself) and a battery as shown. Adjust Ra until full scale deflection is shown on the meter under test. Note the multimeter reading. Now connect a second resistor Rb as shown and adjust it till the reading on the test meter reads half scale. There may be a need to readust Ra so that the multimeter again reads the first noted value. This will mean that Rb has to be reset to give the correct half scale reading. These procedures may have to be repeated a couple of times to obtain the correct levels

After getting the correct result, carefully remove Rb from the circuit and measure its value. This measured resistance is equal to the resist ance of the meter movement.



Voltage Multipliers

These ammeter movements can be made to measure voltage by simply adding a series resistance. The formula for calculating this value is as follows:

 $R = \frac{Es}{r} - Rm$

where, R is the multiplier resistance in ohms, Es is the full scale reading in volts, Is is the full scale reading in amperes, Rm is the meter resistance in ohms.



Ammeter Shunts

The value of the current reading can be increased by simply placing a shunt resistor across the movement. The formula for calculating this value is as follows:

$$R = \frac{Rm}{N-1} = \frac{Im Rm}{Is}$$

where,
R is the resistance in ohms,
Rm is the meter resistance in ohms,
N is the scale multiplication factor,
Im is the meter current, Is is the shunt current.



DECIBELS

Contrary to popular usage and belief the DECIBEL is not a unit of anything, as is the volt or ampere or ohm, but rather a ratio of voltages or currents or power levels in the electronics field. The human ear can detect sounds over a very wide range of power levels but its response is not linear. As the sound level increases the ear's apparent sensitivity decreases. A sound which is doubled in actual intensity does not seem to be twice as loud to

The ear in fact works on a logarithmic scale hence measurements on sound levels or on equipment that produces sound must be on the same logarithmic scale if they are to make

THE DECIBEL CHART

The chart is the one most suitable for measurements on audio amplifiers and associated equipment, with one scale showing the ratio of power or voltage or current plotted against the decibel scale (dB). If specific examples need to be worked out the following formula can be used:-

$$dB = 10 \log \frac{P1}{P2}$$

where P1 and P2 are the two power levels. If the output power is greater than the input power then the ratio, in dB, is positive, e.g. +6dB. If the output is less than the input the ratio is expressed as a negative value, e.g. -12dB. In either case P1 is the larger of the

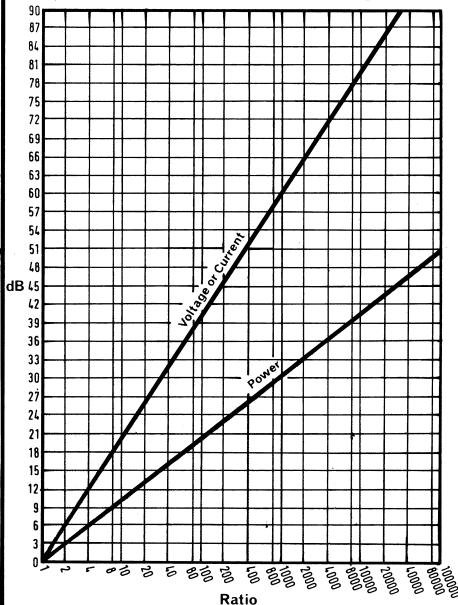
If the voltage or current is being considered the formula becomes:

$$dB = 20 \log \frac{V1}{V2}$$

The formula assumes that the input and output impedances are the same. If they are not then due allowance must be made in the

The formula for taking into account differing input and output impedances is:-

$$dB = 20 \log \frac{V1}{V2} + 10 \log \frac{Z1}{Z2}$$



AVERAGE, RMS, PEAK, AND **PEAK-TO-PEAK VALUES FOR A SINE WAVE**

Given	Multiplying Factor to Get							
Value	Average RMS Peak		Peak-to-					
				Peak				
Average	_	1.11	1.57	3.14				
Rms	0.9	-	1.414	2.828				
Peak	0.637	0.707	-	2.0				
Peak-to Peak	0.32	0.3535	0.5	-				

WIRE GAUGES AND WINDING DATA

This table presents the nominal diameter and resistance (to four significant figures) of bare copper wire in various gauges. The gauges are the Brown and Sharpe gauge (B&S, also known as the American Wire Gauge AWG), the Standard Wire Gauge (SWG), and the metric gauge.

The data is given in both imperial and metric units. The diameter in the imperial units is expressed in mils, a mil being 1/1000in.

The resistance would be within plus or minus 2% at 20°C but varies with temperature. The resistance changes approximately 0.4% for each °C change in temperature, increased temperature giving increased resistance.

B&S SWG Metric Diam. Ohms per Diam. Ohms per

mils 1,000ft mm

km

GAUGES mm

GAL	JGES	mm	mils	1,000#	mm	km
	_	4.500	177.2	0.3304	4.500	1.084
_	7		176.0	0.3348	4.470	1.098
6	_	_	162.0	0.3951	4.116	1.296
_	8	_	160.0	0.4051	4.064	1.329
	_	*4.000	157.5	0.4182	4.000	1.372
7	_	_	144.3	0.4982	3.666	1.635
_	9	_	144.0	0.5001	3.658	1.641
_	_	3.550	139.7	0.5310	3.550	1.742
8	-	_	128.5	0.6262	3.265	2.061
_	10		128.0	0.6330	3.251	2.077
_	_	*3.149	124.0	0.6740	3.149	2.212
_	11		116.0	0.7707	2.946	2.529
9	_	2 000	114.4	0.7921	2.906	2.599
_	12	2.800	110.2 104.0	0.8534 0.9588	2.800 2.642	2.800 4.146
	12	_				
10	_	*0.500	101.9	0.9989	2.589	3.277
_	12	*2.500	98.42 92.00	1.070	2.500	3.512
11	13	_	90.74	1.225 1.260	2.337 2.305	4.020 4.134
<u></u>	_	2.240	88.18	1.333	2.240	4.375
12	_		80.81	1.588	2.053	5.210
_	14		80.00	1.658	2.032	5.440
	_	*2.000	78.74	1.673	2.000	5.488
-	15	_	72.00	2.001	1.829	6.563
13	-		71.96	2.003	1.828	6.572
_		1.000	70.87	2.065	1.800	6.775
14	_	_	64.08	2.525	1.628	8.284
	16		64.00	2.532	1.626	8.307
_	_	*1.600	62.99	2.614	1.600	8.575
15	_		57.07	3.184	1.450	10.47
_	17		56.00	3.307	1.422	10.85
	_	1.400	55.12	3.414	1.400	11.20
16	_	_	50.82	4.016	1.291	13.18
_	_	*1.250	49.21	4.282	1.250	14.05
	18	_	48.00	4.501	1.219	14.77
17	_	_	45.26	5.064	1.150	16.61
	_	1.120	44.09	5.333	1.120	17.50
18		_	40.30	6.385	1.024	20.95
_	19	_	40.00	6.482	1.016	21.27
		*1.000	39.37	6.691	1.000	21.95
_	20	_	36.00	8.002	0.9144	26.25
19	_	_	35.89	8.051	0.9119	26.41
		0.9000	35.51	8.222	0.9000	27.10
_	21	_	32.00	10.13	0.8128	33.23
20			31.96	10.15	0.8120	33.30
	_	*0.8000	31.50	10.45	0.8000	34.30
21		_	28.46	12.80	0.7231	41.99
_	22		28.00	13.23	0.7112	43.40
_	_	0.7100	27.95	13.27	0.7100	43.55
22	_	_	25.35	16.14	0.6440	52.95
_	_	*0.6300	24.80	16.85	0.6300	55.31
	23	_	24.00	18.00	0.6096	59.07
23	_		22.57	20.36	0.5734	66.80
		0.5600	22.04	21.33	0.5600	70.00
_	24	_	22.00	21.43	0.5588	70.30
24	25	_	20.10	25.67	0.5107	84.22
_	25	*0.5000	20.00 19.69	25.93	0.5080	85.06
_	26	*0.5000	18.00	26.76	0.5000 0.4572	87.81 105.0
25	20	_	17.90	32.01 32.37	0.4572	106.2
23						
	27	0.4500	17.72	33.04	0.4500	108.4
26	27	_	16.40	38.56 40.81	0.4162	126.5
26	_	*0.4000	15.94 15.75	41.82	0.4050 0.4000	133.9 137.2
_	28	-	14.80	47.35	0.3759	155.3
27						
27	_	0.3550	14.20	51.47	0.3608	168.9
_	29	0.3550	13.97 13.60	53.10 56.07	0.3550 0.3454	174.2 184.0
28	_	_	12.64	64.90	0.3454	212.9
_	_	*0.3150	12.40	67.45	0.3150	221.2
_	20					
_	30 31	_	12.40 11.60	67.45 77.07	0.3150 0.2946	221.2
29	<u>-</u>	_	11.26	81.83	0.2946	252.9 268.5
	_	0.2800	11.02	85.34	0.2800	280.0
_	32		10.80	88.91	0.2743	291.7

GAL	JGES mm	mils	1,000ft	mm	km
30 	33 —	10.03 10.00 9.842 9.200 8.928 8.819 8.400 7.950 7.874 7.600 7.087 6.800 6.305 6.299	103.2 103.7 107.0 122.5 130.1 133.3 147.0 164.1 167.3 179.5 206.5 206.9 224.3 260.9 261.4	0.2548 0.2540 0.2500 0.2337 0.2268 0.2240 0.2134 0.2020 0.1930 0.1800 0.1727 0.1602 0.1600	338.6 340.2 351.2 402.0 426.8 437.5 482.2 538.4 548.8 589.1 677.5 678.8 856.0 857.5
35 — — 36	38 — — — — — 0.1400 39 — — —	6.000 5.615 5.512 5.200 5.000	288.1 329.0 314.4 383.5 414.8	0.1524 0.1427 0.1400 0.1321 0.1270	945.1 1079 1120 1258 1361
 37 	- *0.1250 40 - - 0.1120 41 -	4.921 4.800 4.453 4.409 4.400	428.2 450.1 523.1 533.3 535.7	0.1250 0.1219 0.1131 0.112 0.1118	1405 1477 1716 1750 1757
38 —	42 — — — — *0.1000 43 —	4.000 3.965 3.937 3.600	648.2 659.6 669.1 800.2	0.1016 0.1007 0.1000 .09144	2127 2164 2195 2625
39 —	- 0.0900 44 - - *0.0800	3.551 3.531 3.200 3.150	822.2 831.8 1013 1045	.0900 .08971 .08128 .0800	2710 2729 3323 3430
40 41 — 42	 0.0710 	3.145 2.801 2.795 2.494	1049 1323 1327 1669	.07990 .07115 .0710 .06336	3442 4341 4355 5476
- 43 -	- *0.0630 46 0.0560	2.480 2.400 2.221 2.204	1685 1800 2104 2133	.0630 .06096 .05643 .0560	5531 5907 6903 7000
44 - *Firs	47 — — — — *0.0500 t preference va	2.000 1.978 1.969 ilues	2593 2654 2676	.05080 .05025 .0500	8506 8707 8781

B&S SWG Metric Diam. Ohms per Diam. Ohms per

WINDING DETAILS

The accompanying table allows easy comparison of the different standards, permitting a near equivalent to be selected if coil winding data (for example) specifies a gauge which is not readily available. If 38 B&S were specified for a coil, it can be seen that either 42 SWG or 0.1 mm metric has approximately the same diameter and could therefore be substituted.

B&S No.		SWG No.		Diam. mm.	Turns per cm Enamelled
8	7.65	10	7.63	4.500	2.158
9	8.58	11	8.33	4.000	2.423
10	9.61	12	9.26	3.550	2.720
11	10.7	13	10.42	3.150	3.060
12	12.0	14	11.90	2.800	3.440
13	13.5	15	13.25	2.500	3.840
14	15.1	16	14.81	2.240	4.280
15	16.9	17	16.95	2.000	4.780
16	18.9	18	19.72	1.800	5.290
17	21.2	19	23.47	1.600	5.940
18	23.7	20	25.97	1.400	6.760
19	26.5	21	29.15	1.250	7.540
20	29.5	22	33.33	1.120	8.390
21	33.1	23	38.91	1.000	9.360
22	37.0	24	42.37	0.900	10.360
23	41.4	25	46.51	0.800	11.610
24	46.5	26	51.55	0.710	13.030
25	52.0	27	56.60	0.630	14.620
26	58.4	28	62.50	0.560	18.240
27	65.3	29	67.57	0.500	20.200
28	73.5	30	74.63	0.450	22.620
29	81.9	31	79.37	0.400	25.300
30	92.5	32	85.47	0.355	28.400
31	103	33	91.74	0.315	31.700
32	114	34	100.0	0.280	35.200
33	129	35	109.9	0.250	39.000
34	144	36	120.5	0.224	43.500
35	161	37	135.1	0.200	47.800
36	181	38	151.5	0.180	53.500
37	204	39	175.4	0.160	60.200
38	227	40	188.7	0.140	67.100
39	256	41	208.3	0.125	74.600
40	285	42	227.3	0.112	82.600

	Turns per inch Enamelled			Diam. mm.	Turns per cm Enamelled
(41)	327	43	256.4	0.100	
(42)	378	44	285.7		
(43)	421	45	322.6		
(44)	471	46	377.4		
(45)	523	47	444.4		
(46)	581	48	_		

In the event that the precise gauge of an available wire is not known, and no micrometer is available, it can be determined quite easily with reasonable accuracy. Wind some of the wire on a small mandrel, such as a pencil, and note the number of turns per unit length. The gauge can now be determined from the tables.

FREQUENCY -WAVELENGTH CONVERSION

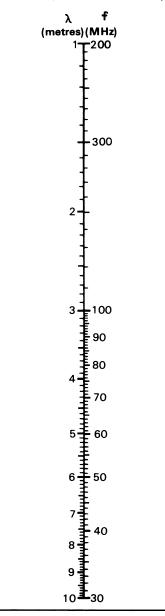
This chart gives the basic conversion from metres to MHz in the range 1-10m and 30-300MHz.

FOR WAVELENGTHS

10m to 100m DIVIDE MHz by 10 100m to 1,000m DIVIDE MHz by 100 1,000m to 10km Answer is in kHz.

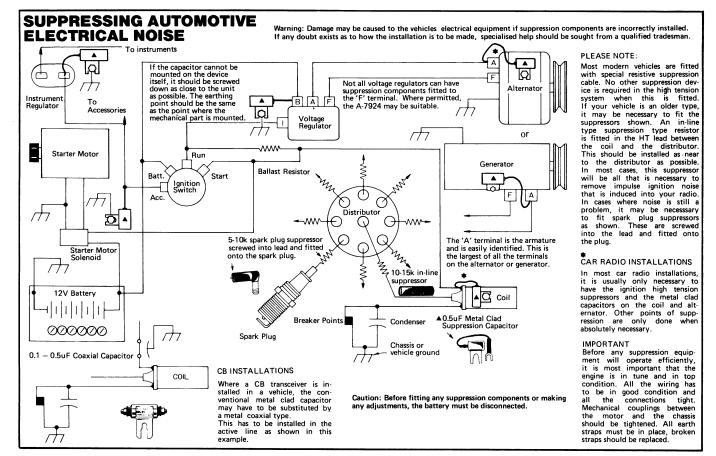
FOR FREQUENCIES

30kHz to 300kHz MULTIPLY metres by 1,000 300kHz to 3MHz MULTIPLY metres by 100 3MHz to 30MHz MULTIPLY metres by 10 300 MHz to 3,000 MHz DIVIDE metres by 10



METRIC UI	NITS AND	CONVERSION	ONS				
Multiply by	— Into ◀ To convert —	— To Convert → Into ————	— ► Multiply by	Multiply by ◀	To convert —	- To Convert → Into	
2.296 x 10 ⁻⁵	Acres	Square feet	4.356 x 10 ⁴	6.481 x 10 ⁻²	Grams	Grains	15.43
2.471 x 10 ⁻⁴	Acres	Square metres	4047	28.35	Grams	Ounces (avdp)	3.527×10^{-2}
2.778 x 10 ⁻⁴	Ampere-hours	Coulombs	3600	1.341	Horsepower	Kilowatts	0.746
2.54 x 10 ⁸	Angstrom units	Inches	3.937 x 10 ⁻⁹	0.3937	Inches	Centimetres	2.54
₁₀ 10	Angstrom units	Metres	10-10	10-3	Kilograms	Tonnes	10 ³
0.02950	Atmospheres	Feet of water	33.90	0.4536	Kilograms	Pounds (avdp)	2.205
0.06804	Atmospheres	Pounds per sq. in.	1470	3.408 x 10 ⁻⁴	Kilometres	Feet	3281
1.0133	Bars	Atmospheres	9.870 x 10 ⁻⁷	9.4637 x 10 ¹²	Kilometres	Light years	1.0567 x 10 ⁻¹³
6.8947 x 10 ²	Bars	Pounds per sq. in.	14.504	0.869	Knots	Miles per hour	1.1508
$(^{O}F - 32) \times 5/9 = ^{O}C$	Centigrade	Fahrenheit	$(^{O}C \times 9/5) + 32 = ^{O}F$	2.54 x 10 ⁻²	Metres	Inches	39.37
$^{\circ}$ K - 273.1 = $^{\circ}$ C	Centigrade	Kelvin	^o C + 273.1 = ^o K	0.6214	Miles (statute)	Kilometres	1.609
3.531 x 10 ⁻²	Cubic feet	Litres	28.32	5.88 x 10 ¹²	Miles (statute)	Light years	1.691 x 10 ⁻¹³
6.102 x 10 ⁻²	Cubic inches	Cubic centimetres	16.39	1,1508	Miles (statute)	Miles (nautical)	0.869
2.832 x 10 ⁻²	Cubic metres	Cubic feet	35.31	10-3	Millimetres	Microns	10 ³
0.16667	Fathoms	Feet	6	2.205 x 10 ⁻³	Pounds	Grams	453.6
3.281	Feet	Metres	0.3048	746	Watts	Horsepower	1.341 x 10 ⁻³

HANDY R	EFEF	RENCI	E CHART F	OR II	MPER	IAL TO MET	RIC (CONV	ERSION		
Inches	Decimal	Millimeters	Inches	Decimal	Millimeters	Inches	Decimal	Millimeters	Inches	Decimal	Millimeters
1/64	.015625	.3969	17/64	.265625	6.7469	33/64	.515625	13.0969	49/64	.765625	19,4469
1/32	.03125	.7937	9/32	.28125	7.1437	17/32	.53125	13.4937	25/32	.78125	19.8437
3/64	.046875	1.1906	19/64	.296875	7.5406	35/64	.546875	13.8906	51/64	.796875	20.2406
1/16	.0625	1.5875	5/16	.3125	7.9375	9/16	.5625	14.2875	13/16	.8125	20.6375
5/64	.078125	1.9844	21/64	.328125	8.3344	37/64	.578125	14.6844	53/64	.828125	21.0344
3/32	.09375	2.3812	11/32	.34375	8.7312	19/32	.59375	15.0812	27/32	.84375	21.4312
7/64	.109375	2.7781	23/64	.359375	9.1281	39/64	.609375	15.4781	55/64	.859375	21.8281
1/8	.125	3.1750	3/8	.375	9.5250	5/8	.625	15.8750	7/8	.875	22.2250
9/64	.140625	3.5719	25/64	.390625	9.9219	41/64	.640625	16.2719	57/64	.890625	22.6219
5/32	.15625	3.9687	13/32	.40625	10.3187	21/32	.65625	16.6687	29/32	.90625	23.0187
11/64	.171875	4.3656	27/64	.421875	10.7156	43/64	.671875	17.0656	59/64	.921875	23.4156
3/16	.1875	4.7625	7/16	.4375	11.1125	11/16	.6875	17.4625	15/16	.9375	23.8125
13/64	.203125	5.1594	29/64	.453125	11.5094	45/64	.703125	17.8594	61/64	.953125	24.2094
7/32	.21875	5.5562	15/32	.46875	11.9062	23/32	.71875	18.2562	31/32	.96875	24.6062
15/64	.234375	5.9531	31/64	.484375	12.3031	47/64	.734375	18.6531	63/64	.984375	25.0031
1/4	.25	6.3500	1/2	.5	12.7000	3/4	.75	19.0500	1	1	25.4



ASCII CODES

DEC.	HEX.	CHAR.	DEC.	HEX.	CHAR.	DEC.	HEX.
000	00	NUL	043	2B 2C	+	086	56
001	őĭ	SOH	044	2C	,	087	57
002	01	STX	045	2D		088	58
003	03	ETX	046	2E		089	59
003	03	EOT	047	2E 2F	/	090	5 A
004	05	ENQ	048	30	Ó	091	5 B
005		ENQ	049	31	ĺ	092	5C
006	06	ACK BEL	050	32	2	093	5D
007	07	DLL	051	33	$\bar{3}$	094	SE
008	08	BS	052	34	ď.	095	5E 5F
009	09	HT	053	35	Š	096	60
010	0A	LF	054	36	5 6	097	61
011	0В	VT	055	37	7	098	62
012	0C	FF	056	38	8	099	62
013	0D	CR	057	39	. 9		63
014	0E	SO	058	3 5	3	100 101	63 64 65 66 67
015	0F	SI DLE	059	3B		101	65
016	10	DLE	039	3C	į	102	66
017	11	DCl	060		<	103	67
018	12	DC2	061	3D	=	104	68
019	13	DC3	062	3E	> -	105	69
020	14	DC4	063	3F		106	6A 6B
021	15	NAK	064	40	@	107	6B
022	16	SYN	065	41	Ā	108	6C
023	17	ETB	066	42	B C D E F G	109	6D
024	18	CAN	067	43	Ç	110	6E
025	19	EM	068	44	D	111	6F
026	l A	SUB	069	45	E	112	70
027	1B	ESC	070	46	F	113	71
028	ic	FS	071	47	G	114	72
029	1D	GS	072	48	H	115	73
030	1E	RS	073	49	Ī	116	74
031	1F	US SPACE	074	4A	J	117	75
032	20	SPACE	075	4B	K	118	76 *
033	21	!	076	4C	L	119	77
034	22	"	077	4D	M	120	78
035	23	#.	078	4E	N	121	79 7 A
036	24	\$	079	4F	0	122	7 A
037	25	%	080	50	P	123	7B
038	26	&	081	51	Q R S T	124	7C 7D
039	27	7,	082	52	Ř	125	7D
040	28	(083	53	S	126	7E
041	29	ì	084	54 55	T	127	7F I
042	2Ă	*	085	55	Ü		7.
0.10							,

STANDARD ASCII **ABBREVIATIONS**

ACK = Acknowledge BELL = Bell BELL = Bell
BS = Backspace
CAN = Cancel
CR = Carriage Return
DC1 = Direct Control 1
DC2 = Direct Control 2
DC3 = Direct Control 3
DC4 = Direct Control 3
DC4 = Direct Link Factor DLE = Data Link Escape EM = End of Medium EMQ = End of Medium
ENQ = Enquiry
EOT = End of transmission
ESC = Escape
ETB = End Transmission Block
ETX = End Text FT = Form Feed
FS = Form Separator
GS = Group Separator
HT = Horizontal Tab HT = Horizontal Tab
LF = Line Feed
NAK = Negative Acknowledge
NUL = Null
RS = Record Separator
SI = Shift In
SO = Shift Out
SOH = Start of Heading
STX = Start Text
SUB = Substitute
SYN = Synchronous Idle
US = Unit Separator
VT = Vertical Tab

THE RS-232C INTERFACE

The basic RS-232C electrical specifications

Communication rate Driver output voltage levels, maximum no load Driver output voltage ranges for loads between 3k

and 7k ohms. Driver output current, short circuit. Driver output impedance with power off. Maximum driver output slew rate.

Receiver input resistance. Effective receiver input capacitance Maximum receiver input voltage range 0-20,000 bits per second -25V logic 1, +25V logic 0 logic 1: -15V (7k) and -5V (3k) logic 0: +15V (7k) and +5V (3k) 500mA maximum 300 ohms minimum

30 volts per microsecond 7k ohms maximum, 3k ohms minimum 2500pF maximum -25V to +25V

RS232C CABLE PLUG CONNECTIONS

DELETE

(Rubout)

CHAR

W X Y Z

Pin No	Signal 1 2 3 4 5 6 7 8 9 10 11 12 13
1.	Protective Ground
2.	Transmit Data
3.	Received Data (
4.	Request to Send
5.	Clear to Send
6.	Data Set Ready
7.	Signal Ground
8.	Received Line Signal Detector 14 15 16 17 18 19 20 21 22 23 24 25
20.	Data Terminal Ready View - socket rear

STANDARD CENTRONICS PRINTER PLUG CONNECTIONS

View - plug rear

Pin No	Signal	Pin No	Signal
19.	Signal Ground		
2.	Data Bit 0	7.	Data Bit 5
3.	Data Bit 1	8.	Data Bit 6
4.	Data Bit 2	1.	Data Strobe
5.	Data Bit 3	10.	Data Acknowledge
6.	Data Bit 4	11.	Input Busy Ready

HEXADECIMAL **CONSTANTS**

HEX-TO-DECIMAL CONVERSION

For each hexadecimal digit, go down the hex code column at the left until you find the right digit. Then move across to the right column. When all four digits have been converted into their decimal equivalents I, II, III, IV, add these all together to get the final answer, i.e.

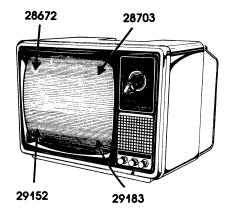
DECIMAL VALUE = IV + III + II + I

HEX CODEMost Significant BytesLeast Significant Bytes

	IV	111	ll l	
0	0	0	0	0
1	4096	256	16	1
2	8192	512	32	2
3	12288	768	48	3
4	16384	1024	64	4
5	20480	1280	80	5
6	24576	1536	96	6
7	28672	1792	112	7
8	32768	2048	128	8
9	36864	2304	144	9
Α	40960	2560	160	10
В	45056	2816	176	11
C	49152	3072	192	12
D	53348	3328	208	13
E	57344	3584	224	14
F	61440	3840	240	15

ONE DVTE					
ONE BYTE	40 28	84 54	ONE BYTE	-40 D8	-84 AC
POSITIVE	41 29 42 2A	85 55	NEGATIVE	-41 D7	-85 AB
NUMBERS	42 2A 43 2B	86 56	NUMBERS	-42 D6	86 AA
	43 2B 44 2C	87 57		-43 D5	-87 A9
0 00	44 2C 45 2D	88 58 89 59		-44 D4	88 A8 89 A7
1 01	46 2E	90 5A	-1 FF	-45 D3	-89 A7
2 02	47 2F	91 5B	−2 FE −3 FD	-46 D2	90 Ab
3 03		92 5C	-3 FD -4 FC	-47 D1	-91 A5
4 04	48 30	93 5D	−4 FC −5 FB	-48 DO	-92 A4
5 05	49 31	94 5E	-5 FB	-49 CF	-93 A3
6 06	50 32	95 5F	_7 F9	−50 CE	-95 A1
7 07	51 33		_7 F9	-51 CD	-96 AO
8 08	52 34	96 60	_8 F8	−52 CC	-97 9F
9 09 10 0A	53 35	97 61	_10 F6	-53 CB	-98 9E
10 OA	54 36	98 62	-10 F6	-54 CA	-99 9D
12 OC	55 37	99 63	-12 F4	-55 C9	-100 9C
12 OC	56 38	100 64	-13 F3	-56 C8	-101 9B
14 OE	57 39	101 65	-14 F2	-57 C7	-101 9A
15 OF	58 3A	102 66	-15 F1	-58 C6	-103 99
13 01	59 3B	103 67	-16 FO	-59 C5	-104 98
16 10	60 3C	104 68		-60 C4	-105 97
17 11	61 3D	105 69	-17 EF	-61 C3	-106 96
18 12	62 3E 63 3F	106 6A	-18 EE	-62 C2	-107 95
19 13		107 6B	19 ED	-63 C1 -64 C0	-108 94
20 14	64 40	108 6C	-20 EC		-109 93
21 15	65 41	109 6D	-21 EB	-65 BF	-110 92
22 16	66 42	110 6E	-22 EA	-66 BE	-111 91
23 17	67 43	111 6F	-23 E9	-67 BD	-112 90
24 18	68 44 69 45	112 70	-24 E8	-68 BC	-113 8F
25 19		113 71	-25 E7	-69 BB	-114 BE
26 1A	70 46 71 47	114 72	-26 E6 -27 E5	-70 BA	-115 8D
27 1B	72 48	115 73	-27 E5 -28 E4	-71 B9	-116 BC
28 1C 29 1D	73 49	116 74	-28 E4 -29 E3	-72 B8 -73 B7	-117 8B
30 1E	74 4A	117 75	-30 E2	-73 B7	-118 8A
30 1E	75 4B	118 76	-30 E2 -31 E1	-74 B6	-119 89
	76 4C	119 77	-32 EO	-75 B5	-120 88
32 20	77 4D	120 78		-70 B4	-121 87
33 21	78 4E	121 79	-33 DF	-77 B3	-122 86
34 22	79 4F	122 7A	-34 DE	-79 B1	-123 85
35 23		123 7B	-35 DD	-80 BO	-124 84
36 24	80 50	124 7C	-36 DC		-125 83
37 25	81 51	125 7D	-37 DB	-81 AF	-126 82
38 26	82 52	126 7E	-38 DA	-82 AE	-127 81
39 27	83 53	127 7F	-39 D9	-83 AD	-128 80

DECIMAL POKE ADDRESSES FOR VZ-200 AND VZ-300 DISPLAY CORNERS

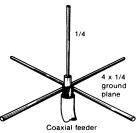


ANTENNA DATA

BASICS

The basic horizontal half wave aerial ($\%\lambda$). In practice, the physical length required for resonance is reduced by a factor of 0.95 (0.95 × $\%\lambda$) due to the effect of insulators and nearby objects. A simple formula for the practical half wave aerial is 143/F (MHz) metres. At resonance the induced voltage V will be maximum at the ends of the aerial (high impedance) while the current I will be maximum at the centre.

The basic Marconi aerial is a quarterwave vertical with the lower end close to the ground, and it is used mainly on the lower frequencies. If this aerial is erected over a perfectly conducting ground then an image of the aerial is formed, which simulates a half-wave aerial. In practice the 'perfect' earth is formed from a number of long wires (radiats) laid on or just under the surface of the earth.

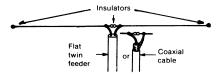


It is not necessary for the aerial wire to be physically the correct length for a particular frequency or wavelength. It can be made shorter or longer electrically to achieve the same state of resonance by using an aerial tuning unit (a.t.u.).

At higher frequencies, such an aerial is commonly mounted well above earth, and relies upon $\lambda/4$ radials entirely for its reflecting "earth plane". Such an aerial is known as a ground-plane.

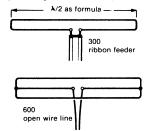
HALF WAVE DIPOLE

As the impedance at the centre of a half-wave aerial is approximately 70 ohms, flat twin or coaxial feeders will provide a good impedance match to the aerial ensuring maximum signal transference. The aerial, length calculated from the formula given, is cut at the centre and an insulator inserted, the wires of the feeder being connected either side of the insulator.



FOLDED DIPOLE

The folded dipole will transform the input impedance by a factor of 2° or 4.70 = 280 ohms so that it can be fed with a flat ribbon feeder of 300 ohms impedance, provided the wires forming the folded dipole are the same diameter. If a three-fold dipole is used, the input impedance will be $70 \times 3^{\circ} = 630$ ohms which will provide a good match to an open line feeder.



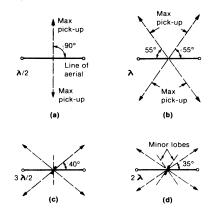
RODS AND WHIPS

For the unit dweller, often without access to a roof or loft space, the only answer may be a vertical rod aerial 3 or 4m long, made from aluminium or copper tubing. An a.t.u. is essential here to bring the aerial to resonance on the various bands. Being very short this aerial will perform better on the higher frequency bands such as 10 and 15m. A commercial whip aerial, with a base-mounting insulator, of the type intended for mobile use can also be useful in this situation.

DIRECTIVITY

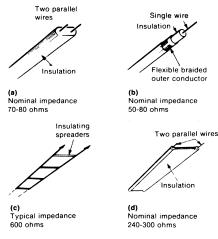
Signal pick-up of a half-wave aerial is maximum at right angles to the line of the wire (a). If the wire is one wavelength long maximum pick-up is from four directions (b). By choosing the right length of aerial and adjusting its orientation the maximum pick-up lobes can be made to cover all the land areas of the world.

Longer aerials result in the appearance of minor lobes (c) and (d) which reduce directivity and improve all round coverage With an aerial many wavelengths long maximum reception is along the line of the wire.



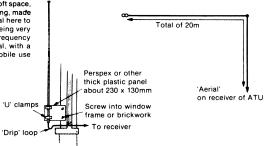
FEEDERS

Since the aerial should be located in the clear and generally as high as possible to produce maximum signal strength it is necessary to use a feeder to connect the aerial to the receiver. Low impedance feeders may be flat twin (a), coaxial (b) or flat ribbon (d). High impedance feeders consist of two wires spaced apart by insulators every foot or so (c).



LONG WIRE

A long length of copper wire, with one end connected to the receiver, is probably the most commonly used aerial. For best results it should be erected out of doors. The inverted "L" aerial is a good all-round performer especially if the vertical section can be 7m or more long. If the overall length is around 20m it will function well on the amateur bands without an aerial tuning unit but an a.t.u. will make it even better. The combination of horizontal and vertical polarisation will help with DX signals where the received signal's polarisation can vary considerably from minute to minute.

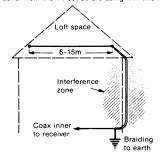


INDOOR

A long wire aerial can be erected in restricted loft spaces and inside roofs even if it means draping it round the rafters! If electrical noise is a problem then the lower part of the aerial can be a length of coaxial cable with the outer screen connected to the receiver chassis or earth.

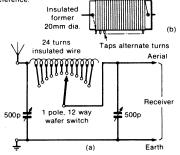
A similar aerial can be strung around a room, and even quite a small room will enable a 12 metre length to be used.

One convenient form of aerial can be obtained by using the coaxial cable of a TV aerial, the outer braiding being connected to the aerial socket of the receiver. Important! — disconnect the TV aerial from the TV set before using it in this form.



AERIAL TUNING UNIT

For best results an end-fed wire aerial or rod aerial should be matched to the receiver input circuit with an Aerial Tuning Unit (a). The inductor (b) iswoundmaking a loop every other turn, the loops then being soldered to the switch tags. Fit each tuning capacitor with a calibrated knob or dial and number the switch positions. Adjust the capacitors and switch position for maximum signal strength noting that the three adjustments revery much interdependent. Log dial and switch readings for future reference.



YAGI

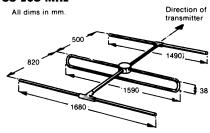
The most common version of the parasitic aerial array, the Yagi, will be familiar to all in its application to v.h.f. and u.h.f. TV and to v.h.f. f.m. sound reception. Its basic form, the "H", is formed by adding a single rod to a half-wave dipole, spaced some small fraction of a wavelength from it. By making the rod slightly longer than the dipole, it acts as a reflector, modifying the response pattern to a cardioid (heartshape) pattern. In practice this is not a perfect cardioid, and there will be an unwanted rear

Adding a second rod, slightly shorter than the dipole, on the opposite side to the reflector, will reinforce and narrow the main lobe of the response pattern. A 3-element Yagi suitable for v.h.f. f.m. sound reception is shown. The frequency of maximum response if 95MHz.

Further directors may be added in front of the first, each slightly improving the gain of the aerial array, up to a limit of about 36 elements, after which no significant increase is obtained.

Adding parasitic elements reduces the impedance of the dipole, as seen by the feeder, and a folded dipole is frequently used, to help to compensate for this.

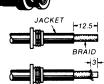
V.H.F. YAGI FOR F.M. RADIO 88-108 MHz

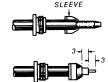


WIRING PLUGS

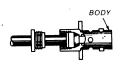


- Remove 12.5mm of jac-
- 3. Push braid back and remove 3mm of insulation and conductor.
- 4. Taper braid
- Slide sleeve over tapered braid. Fit inner shoulder or sleeve squarely against end of jacket
- comb out braid, fold back smooth as shown, and trim 2.5mm.
- Bare centre conductor 3mm
- Tin centre conductor of cable. Slip female contact in place and solder. Remove excess solder. Be sure cable dielectric is not heated excessively and swollen so as to prevent dielectric enterina body.
- Push into body as far as it will go. Slide nut into body and screw into place, with wrench, until it is moderately tight. Hold cable and shell rigidly and rotate nut.
- 10. This assembly procedure applies to both BNC jacks and plugs.











THE PHONETIC ALPHABET

When it is necessary to spell out words, as for example when communication is difficult, or speaking to a station unable to converse fluently in English, the following table may be used.

When it is necessary to spell out figures or marks, the following table should be used:

	Code word to be used
0	NADAZERO
1	UNAONE
2	BISSOTWO

tra

Spoken as

iransmitted		
0	NADAZERO	NAH-DAH-ZAY-ROH
1	UNAONE	OO-NAH-WUN
2	BISSOTWO	BEES-SOH-TOO
3	TERRATHREE	TAY-RAH-TREE
4	KARTEFOUR	KAR-TAY-FOWER
5	PANTAFIVE	PAN-TAH-FIVE
6	SOXISIX	SOK-SEE-SIX
7	SETTESEVEN	SAY-TAY-SEVEN
8	OKTOEIGHT	OK-TOH-AIT
9	NOVENINE	NO-VAY-NINER
Decimal		
point	DECIMAL	DAY-SEE-MAL
Full stop	STOP	STOP

AL FAH ALFA BRAVO BRAH VOH CHAR LEE CHARLIE C D DELTA DELL TAH Ε **ECHO** ECK OH FOXTROT FOKS TROT G GOLF GOLF HOTEL HOH TELL IN DEE AH INDIA JULIET JEW LEE ETT KILO KEY LOH L LIMA LEE MAH MIKE MIKE NOVEMBER OSCAR NO VEM BER NOPQ OSS CAR PAPA PAH PAH KEH BECK QUEBEC ROMEO SIERRA ROW ME OH SEE AIR RAH R S T U TANGO TAN GO UNIFORM YOU NEE FORM VICTOR VIK TOR w WISS KEY WHISKY X-RAY YANKEE ECKS RAY YANG KEY ZULU Z00 L00

Spoken as

Word

Letter

THE "Q" CODE

What is your station?

How far away are you? What channel am I on? ORB

QRG ORH Does my frequency vary?

What is my readability?

ORM Are you being interfered with (by other stations - man interference)?

ORN Are you troubled by noise or static (natural interference lightning etc.)?

ORP

Can you reduce power? Shall I stop transmitting?

QRY I am on standby unless messages are specifically

QRV Are you ready?

Wait briefly (e.g. QRX-1; wait 1 minute). Who is the station that's calling me, ORX

QRZ

QSA What is my strength?

QSB Am I fading?

OSL Can you acknowledge receipt (QSL card - card for this purpose).

OSN Did you hear me on -?

Two-way communication between stations. QSO

Will you change to another channel?
What is your location now? OSY

What is the correct time?

PL259 WITH ADAPTORS





Fan braid slightly and fold back over cable



3. Compress braid around cable. Position adapter. Press braid down over adapter and trim



4. Bare 12.5 mm of centre conductor. Pre-tin exposed centre conductor



- 5. Screw the plug assembly on cable. Solder plug assembly to braid through solder holes. Solder conductor to contact sleeve
- 6. Screw coupling ring on assembly



MORSE CODE

Morse is an 'Aural' language (that is, received by the ears and not by the eyes). It should never be represented in dot and dash

Instead, try to think of Morse as 'dits' and 'dahs'. A 'dit' is a short sharp note, made by quickly pressing the key and releasing it. A dah' should be three times longer than a dit — you hold the key down for three times as long.

- di'dah dah dah dah
- 2 di'di'dah dah dah
- di'di'di'dah dah
- di'di'di'di'dit 6 dah di'di'di'dit
- dah dah di'di'dit
- dah dah dah di'dit
- dah dah dah dah dit
- dah dah dah dah dah

The 'International' Morse Code we know today is an adaptation of Morse's original code, called the 'Continental' Code. It differs in only a few respects: if one code is known thoroughly, it is usually possible to reasonably understand the other

- A di'dah R dah di'di'dit С dah di'dah dit D dah di'dit Е dit F di'di'dah dit G dah dah dit
- di'di'di'dit н 1 di'dit
- J di'dah dah dah dah di'dah
- di'dah di'dit м dah dah
- N dah dit
 - 0 dah dah dah

- P di'dah dah dit
- O dah dah di'dah R di'dah dit
- s di'di'dit T dah
- U di'di'dah v di'di'di'dah
- di'dah dah
- X dah di'di'dah Y dah di'dah dah
- Z dah dah di'dit di'dah di'dah di'dah
- ? di'di'dah dah di'dit
- Error di'di'di'di'di'di'di'di

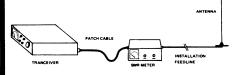
ANTENNA MATCHING & SWR

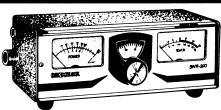
With any transmitter it is important to match it to the antenna. Otherwise some of the power will not be effectively transmitted but instead reflected back into the transmitter. The SWR meter provides a means of measuring the "match"

MEASURING THE SWR

Follow the step-by-step procedure here and you will be surprised how easy it is!

- (1) If you are using a single-meter instrument, switch to read
- (2) Turn the 'sensitivity' control to minimum and then press the transmit button. Quickly adjust the sensitivity control to obatain maximum reading on the meter, or the forward meter on instruments with two meters.
- Now switch to 'reverse' or 'reflected' and the SWR will be indicated on the meter scale. Two meter instruments will show SWR on the 'reflected' meter.
- (4) The table will tell you whether to worry or not!





It is almost impossible to have a perfectly matched antenna system and a standing wave ratio of 1:1 is virtually impossible. Here's what happens to your transmitter power for various standing wave ratios - plus comments.

SWR	PERCENTAGE POWER INTO ANTENNA	COMMENTS
1:1	100%	PERFECT
1.05:1	99.93%	EXCELLENT
1.1:1	99.78%	EXCELLENT
1.2:1	99%	V. GOOD
1.5:1	96%	GOOD
2:1	88%	IMPROVE IF POSSIBLE
2.5:1	82%	IMPROVE IF POSSIBLE
3:1	75%	BAD

AUSTRALIAN COLOUR TELEVISION TRANSMISSION STANDARDS

Channel Width:

7MHz vestigial sideband transmission

Vision Carrier: Sound Carrier: 1.25MHz above lower frequency edge of the channel

Vision Modulation:

5.4996MHz above vision carrier

Negative amplitude modulation

Lines Per Picture: Line Frequency:

625 lines, interlaced 2:1 15.625Hz

Aspect Ratio: Hor. Sync Pulse:

4:3

Hor. Sync Pulse Amp.:

Front Porch:

White Level:

Back Porch: Line Blanking Interval: Black and Blanking Level:

11.8uS to 12.3uS 77% of peak carrier level

Pre-equalising Pulse Interval: Post-equalising Pulse Interval:

Field Sync Pulse Interval Field Blanking Interval:

Peak Vision Carrier Power Ratio Peak Sound Carrier Power

Sound Deviation:

4.5uS to 4.9uS with 0.2us to 0.4uS rise time 100% carrier amplitude 1.3uS to 1.8uS

Line blanking interval - (front porch + sync pulse width)

20% of peak carrier level 2.5H (H=line period, 64uS)

2.5H 25H + 12uS

Frequency modulation + 50kHz

CHARACTERISTICS

Colour Coding System:

Colour Sub-carrier: E'Y:

4.43361875MHz (± 5Hz) 0.299E'_R + 0.587E'_G + 0.114E'_B

0.493(E'B-E'Y)

COLOUR TRANSMISSION

E'U:

E'v:

Gamma of Picture Tube: Limits of Chrominance:

Sideband Components: Reference White:

Colour Burst Amplitude: Colour Burst Duration:

 $0.877 \; {\rm E'}_{\rm R} - {\rm E'}_{\rm Y})$ 2.8: Correction at camera of Ec 0.457 +0.57 to -1.3MHz for both V and U components

As the result of E'Usin $2\pi f_{SC}t \pm E' v \cos 2\pi f_{SC}t$ CIE D6500 $^{\circ}$ * = x = 0.313, y = 0.329

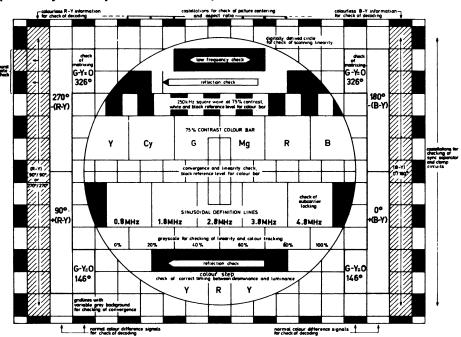
PtoP -40% of black level to white level 10 cycles commencing 5.6us after leading edge of line sync pulse

*Black Body temperature

in^OKelvin(^OC + 273.16)

PHILIPS PM 5544 T.V. TEST PATTERN

(Courtesy of Philips Industries Ltd.)



VHF AIRCRAFT **CHANNELS**

FREQ.	CHANNEL USAGE
118.1	Bankstown & other Secondary Towers
118.7	Canberra/Parafield Tower
118.9	Melbourne Departure
119.1	Club Frequency
119.4	Sydney Approach
120.5	Adel/Bris/Melb/Syd Tower
120.9	Auto Information Serv. (Secondary airports)
121.1	Area frequency
123.0	Sydney Departure
124.2	Adelaide Approach
124.4	Sydney Approach
124.7	Bris/Melb Approach
125.3	Sydney Departure
125.8	Area Frequency

AERODROME TERMINAL INFORMATION

A.M. MODE

ADELAIDE	117.3 MHz
SYDNEY	115.4 MHz
PERTH	113.7 MHz
CAIRNS	113.7 MHz
CANBERRA	113.5 MHz
ROCKHAMPTON	116.9 MHz
BRISBANE	113.9 MHz
MELBOURNE	113.9 MHz
ALICE SPRINGS	115.9 MHz
DARWIN	113.7 MHz
PORT HEADLAND	113.7 MHz

AUSTRALIAN VHF & UHF TELEVISION CHANNELS

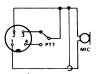
VHF

,							
Channel	Vision Carrier Frequency (MHz)	Frequency Limits (MHz)					
0	46.25	45-52					
1	57.25	56-63					
2	64.25	63-70					
3	86.25	85-92					
4	95.25	94-101					
5	102.25	101-108					
5A	138.25	137-144					
6	175.25	174-181					
7	182.25	181-188					
8	189.25	188-195					
9	196.25	195-202					
10	209.25	208-215					
11	216.25	215-222					

UHF

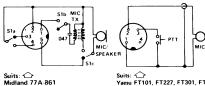
Channel	Vision Carrier Frequency (MHz)	Frequency Limits (MHz)				
	Band IV					
28	527.25	526-534				
29	535.25	534-542				
30	543.25	542-550				
31	551.25	550-558				
32	559.25	558-566				
33	567.25	566-574				
34	575.25	574-582				
	Band V					
39	615.25	614-622				
40	623.25	622-630				
41	631.25	630-638				
42	639.25	638-646				
43	647.25	646-654				
44	655.25	654-662				
45	663.25	662-670				
46	671.25	670-678				
47	679.25	678-686				
48	687.25	686-694				
49	695.25	694-702				
50	703.25	702-710				
51	711.25	710-718				
52	719.25	718-726				
53	727.25	726-734				
54	735.25	734-742				
55	743.25	742-750				
56	751.25	750-758				
57	759.25	758-766				
58	767.25	766-774				
59	775.25	774-782				
60	783.25	782-790				
61	791.25	790-798				
62	799.25	798-806				
63	807.25	806-814				
		•				

TRANSCEIVER MICROPHONE CONNECTIONS

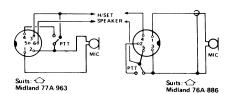


Midland: 77A-857, 77A-882, 79A-892 Scorpion, Hornet, Wasp, Bumblebee





Suits: Yaesu FT101, FT227, FT301, FT7, FT901, FT902



CONNECTIONS SHOWN LOOKING AT FRONT OF MICROPHONE PLUG

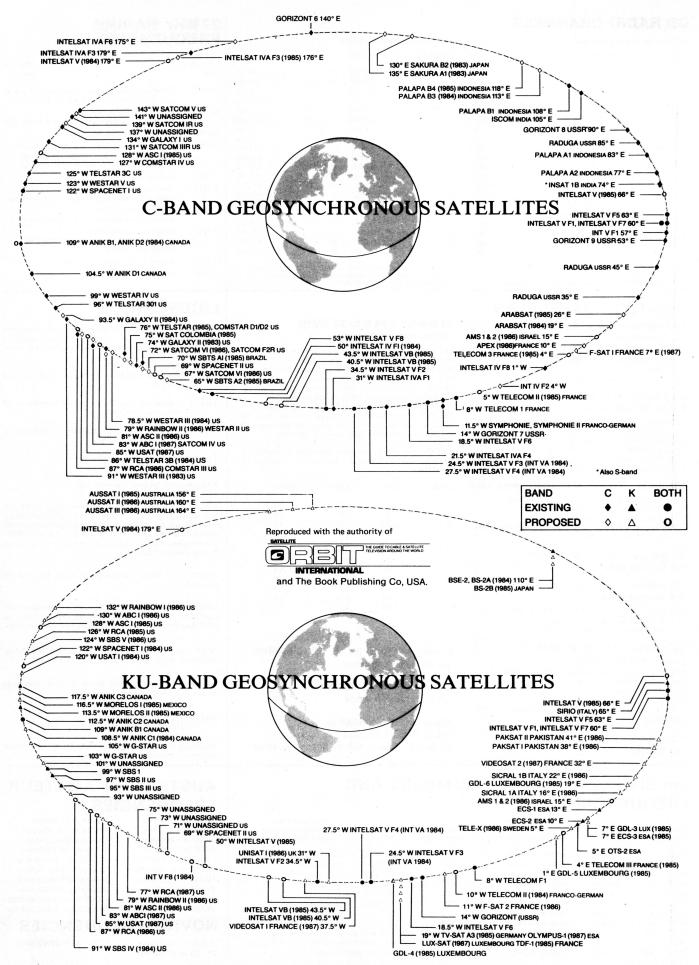
BROADCAST STATIONS

AM STATIONS

LOCATION	CALL- SIGN	FREQ. (kHz)	LOCATION	CALL- SIGN	FREQ. (kHz)	LOCATION	CALL- SIGN	FREQ. (kHz)	LOCATION	CALL- SIGN	FREQ. (kHz)
NEW SOUTH WALES						WESTERN AUSTRALIA			QUEENSLAND		
Armidale	2AD	1134	Sydney	2UE	954	Albany	6AL	630	Oakley	4AK	1242
Armidale	2AN	720	Muswellbrook	2UH	1044	Northam	6AM	864	Atherton	4AM	558
Albury	2AY	1494	Sydney	2UW	1107	Broome	6BE	675	Atherton	4AT	720
Bega	2BA	810	Moree	2VM	1530	Busselton	6BS	684	Ayr	4AY	936
Bega	2BE	765	Wilcannia	2WA	1584	Bridgetown	6BY	900	Brisbane	4BC	1116
Moruya (Translator)	2BE-T	765	Bourke	2WEB	576	Carnarvon	6CA	846	Brisbane	4BH	882
Broken Hill	2BH	567	Wagga	2WG	1152	Collie	6CI	1134	Brisbane	4BK 4BU	1296 1332
Sydney	2BL	702	Wollongong	2WL	1314	Derby	6DB	873	Bundaberg Cairns	480 4CA	846
Bathurst	2BS	1503	Wollongong	2WN 2WS	1431 1224	Dalwallinu	6DL 6ED	531 837	Gladstone	4CD	927
Byrock	2BY	657	Sydney	2WS 2XL	918	Esperance Geraldton	6GE	1008	Biloela (Translator)	4CD-T	927
Canberra Canberra	2CA 2CC	1053 1206	Cooma Canberra	2XX	1008	Kalgoorlie	6GF	648	Gold Coast	4GG	1197
Sydney	2CH	1170	Canberra	2^^	1008	Geraldton	6GN	828	Charters Towers	4GC	1170
Canberra	2CN	1440				Perth	6IX	1080	Gympie	4GM	1566
Albury	200	675	VICTORIA			Karratha	6KA	1260	Toowoomba	4GR	864
Cooma	2 C P	1602	Melbourne	3AK	1503	Kalgoorlie	6KG	981	Gympie	4GY	558
Orange	2CR	549	Melbourne	3AR	621	Kununurra	6KW	756	Hughenden	4HU	1485
Campbelltown	2CT	1602	Melbourne	3AW	1278	Perth	6KY	1206	Ipswich	4IP	1008
Canberra	2CY	846	Ballarat	3BA	1314	Merridin	6MD	1098	Julia Creek	4JK	567
Dubbo	2DU	1251	Bendigo	3BO	945	Mount Newman	6MN	567	Brisbane	4KQ	693
Newcastle (Translator)	2EA-T	1584	Colac	3CS	1134	Narrogin	6NA	918	Innisfail-Tully	4KZ	531
Sydney	2EA	1386	Melbourne	3CR	837	Northam	6NM	612	Longreach	4LG	1098
Wollongong (Translator)	2EA-T	1485	Maryborough	3CV	1071	Perth	6NR	927	Mount Isa	4LM	1368
Sydney	2FC	576	Melbourne	3DB	1026	Port Hedland	6NW	1026	Maryborough	4MB	1161
Sydney	2GB	873	Melbourne	3EA	1224	Port Hedland	6PH	603	Mount Isa	4MI	1080
Grafton	2GF	1206	Sale	3GI	828	Perth	6PM	990	Mackay	4MK	1026
Glen Innes	2GL	819	Geelong	3GL	1341	Perth	6PR	882	Mossman	4MS	639
Goulburn	2GN	1368	Hamilton	3HA	981	Bunbury	6TZ 6VA	963 783	Nambour	4NA	828 756
Gosford	2G0	1323	Melbourne	3KZ	1179	Albany	6WA	763 558	Mackay	4QA 4QB	855
Orange Newcastle	2GZ 2HD	1089 1143	Melbourne	3L0	774	Wagin Katanning	6WB	1071	Maryborough Emerald	4QB 4QD	1548
Katoomba	2KA	783	Mildura	3MA	1467	Perth	6WF	720	Brisbane	4QD	792
Penrith (Translator)	2KA-T	1476	Omeo	3MT	720	Wyndham	6WH	1017	Longreach	4QL	540
Kempsey	2MC	531	Wangaratta	3NE 3SH	1566 1332	Perth	6WN	810	Townsville	4QN	630
Newcastle	2KO	1413	Swan Hill Shepparton	35H 35R	1260	Exmouth	6XM	1188	Eidsvold	400	855
Kempsev	2KP	684	Sale	3TR	1242				Brisbane	4QR	612
Sydney	2KY	1017	Warragul	31H	531				Toowoomba	4QS	747
Young	2LF	1359	Melbourne	3UZ	927				St. George	4QW	711
Lithgow	2LG	1485	Warnambool	3WL	1602				Cairns	5QY	801
Lismore	2LM	900	Horsham	3WV	594				Rockhampton	4RK	837
Lithgow	2LT	1395	Warnambool	3YB	882				Rockhampton	4RO	990
Mudgee	2MG	1449	Melbourne	3XY	1422	SOUTH AUSTRALIA			Kingaroy	4SB	1071
Murwillumbah	2ML	720	Horsham	3WM	1089	Adelaide	5AA	1386	Southport	4SO	1593
Gunnedah	2MO	1080	Frankston	3MP	1377	Adelaide	5AD	1323	Thursday Island	4TI	1062
Murwillumbah	2MW	972	Wangaratta	3WA	756	Adelaide	5AN	891	Townsville	4TO	774
Newcastle	2NA	1512				Port Augusta	5AU	1242	Charleville	4VL 4WK	918 963
Broken Hill	2NB 2NC	999 1233	TASMANIA			Port Pirie	5CK 5CL	639 729	Warwick	4WR 4WP	1044
Newcastle Muswellbrook	2NC 2NM	1458		7AD	900	Adelaide	5CL 5DN	972	Weipa Roma	4ZR	1476
Grafton	2NM 2NR	738	Devonport Burnie	78U	558	Adelaide Adelaide	5 DN 5 KA	1197	Roma	42N	14/6
Tamworth	2NU	648	Launceston	7 EX	1008	Leigh Creek	5LC	1602			
Bolwarra	2NX	1341	Fingal	7 F.G	1161	Port Lincoln	5LN	1485			
Invereil	2NZ	1188	Hobart	7HO	864	Mount Gambier	5MG	1584			
Wollongong	200	1575	Hobart	7HT	1080	Murray Bridge	5MU	1458	NORTHERN TERRITORY		
Parkes	2 PK	1404	Launceston	7LA	1098	Renmark	5MV	1593	Alice Springs	8AL	1377
Deniliquin	2QN	1521	Launceston	7NT	711	Naracoorte	5PA	1161	Darwin	8DN	1242
Taree	2 RE	1557	Queenstown	7QN	630	Crystal Brook	5PI	1044	Darwin	8DR	657
Griffith	2RG	963	Queenstown	7QT	837	Renmark	5RM	801	Gove	8GO	990
Sydney	2SM	1269	Scottsdale	7SD	540	Mount Gambier	5SE	1296	Alice Springs	8HA	900
Nowra	2ST	999	St. Helens	7SH	1548	Streaky Bay	5SY	693	Jabiru	8JB	747
Tamworth	2TM	1287	Hobart	7ZL	603	Adelaide	5UV	531	Katherine	8KN	675
Taree	2TR	756	Hobart	7ZR	936	Woomera	5WM	1584	Tennant Creek	8TC	684

FM STATIONS

MHz	Call Sign	Power (kW)		Location	MHz	Call Sign	Power (kW)		Location	MHz	Call Sign	Power (kW)		Location	MHz	Call Sign	Power (kW)		Location
89.7	2VTR	0.02	м	Windsor Colo	93.7	3MBS	4	н	Melbourne	103.5	3GCR	0.05	М	Churchill	106.1	2ABC	25	н	Newcastle
	5PBA	0.25	М	Elizabeth		4ABC	50	Н	Rockhampton		3MBR	0.5	V	Murrayville		4ABC	50	н	Brisbane
						5MMM	4	М	Adelaide	103.7	2NUR	3	М	Newcastle	106.3	3ABC	100	М	Bendigo
	2NBC	0.1		Narwee	93.9		27		Hobart	103.9	3CCC	2	V	Castlemaine		3RPC	0.035	М	Portland
	2NSB	0.08	٧	Chatswood	96.1	6NOW	10	М	Perth		4TTT	0.05	М	Townsville	107.1	2AAA	0.2	M	Wagga Wagga
92.1	5ABC	10		Adelaide	97.5	6ABC	50	Н	Perth	104.1	2CHY	0.04	V	Coffs Harbour		3ABC	100	н	Traralgon
	6UVS	5	М	Perth							2DAY	35	М	Sydney	107.5	2ABC	50	М	Griffith
	7THE	3	Н	Hobart		4ABC	65		Townsville		4MMM	6	М	Brisbane		2SER	4		
92.3	2ARM	0.1	Н	Armidale	101.9	2ABC	50	V	Canberra		5ABC	150	н	Mt Gambier				M	Adelaide
	2MCE	1	V	Bathurst		3FOX	10	М	Melbourne		8TOP	10	М	Darwin	107.7	3PBS	0.1	м	Melbourne
	3EON	10	М	Melbourne	102.1	4ZZZ	6	М	Brisbane	104.3	3ABC	50	М	Albury/	107.9	2ABC	25	М	Wollongong
92.5	2NCR	3	М	Lismore		8CCC	0.125	V	Alice Springs					Wodonga		2REM	0.3	М	Albury
92.9	2ABC	50	Н	Sydney	102.3		100	Н	Mildura	104.9	2MMM	35	М	Sydney		4ABC-FM	50	М	Toowoomba
	2ABC	10	٧	Orange	102.5	2MBS	10	М	Sydney	105.1	5ABC	95	V	Loxton					
	5EBI	4	М	Adelaide	102.7	3RRR	10	М	Melbourne	105.3	3ABC	50	н	Ballarat					
	6NEW	0.25	Н	Newman		4DDB	2		Toowoomba	105.7	2ABC	50	М	Wagga Wagga	NOTE	s.			
93.3	6ABC	60	Н	Bunbury	103.2	2CBA	10	М	Sydney		2JJJ	10	н	Melbourne	н	Horizontal			
	7ABC	120	Н	Launceston	103.3	4MBS	2	М	Brisbane						Ÿ	Vertical			
	45	,				7HFC	1.5	М	Hobart						м	Mixed			



CB RADIO CHANNELS

LLE 40 Channel Australian Standard

HF 40 Channel Australian Standard				Onr 40 Channe	H Australian Standa	ii u	
Channel No.	Frequency MHz			Channel No.	Frequency MHz		
1	26.965	21	27.215	1	476.425	21	476.925
2	26.975	22	27.225	2	476.450	22	476.950
3	26.985	23	27.255	3	476.475	23	476.975
4	27.005	24	27.235	4	476.500	24	477.000
5	27.015	25	27.245	5 emergency	476.525	25	477.025
6	27.025	26	27.265	6	476.550	26	477.050
7	27.035	27	27.275	7	476.575	27	477.075
8	27.055	28	27.285	8	476.600	28	477.100
9 emergency	27.065	29	27.295 ,	9	476.625	29	477.125
10	27.075	30	27.305	10	476.650	30	477.150
11	27.085	31	27.315	11	476.675	31	477.175
12	27,105	32	27.325	12	476.700	32	477.200
13	27.115	33	27.335	13	476.725	33	477.225
14	27.125	34	27.345	14	476.750	34	477.250
15	27.135	35	27.355	15	476.775	35	477.275
16	27,155	36	27.365	16	476.800	36	477.300
17	26.165	37	27.375	17	476.825	37	477.325
18	27,175	38	27.385	18	476.850	38	477.350
19	27,185	39	27.395	19	476.875	39	477.375
20	27.205	40	27.405	20	476.900	40	477.400

Communication for an annual fee.

There are at present 40 channels available on the HF Band.

Further information may be obtained from the Department of Communication at an office nearest you.

27MHz MARINE FREQUENCIES

Frequency MHz	Channel Use
27.680	Commercial Oranisations. Domestic ship-shore-ship and intership, calling and working.
27.720	Professional Fishermen. Domestic, ship-shore-ship, calling and working.
27.820	Professional Fishermen. Intership.
27.860	Amateur Organisations. Alternate calling and working for distress, emergency and safety messages for weather and position reports.
27.880	Distress calling only.
27.900	Amateur Organisations. Domestic ship-shore-ship, calling and working.
27.910	Amateur Organisations. Domestic ship-shore-ship, calling and working.
27.940	Amateur Organisations. Club events, ship-shore-ship and intership, calling and working.
27.960	Amateur Organisations. Intership.
27.980	Surf rescue.

AMATEUR BAND PLAN

160 metres - 1.8 to 1.86MHz full licence only

- 1.8 to 1.815MHz Morse section 1.815 to 1.860MHz voice section 1.825MHz national call channel 1.820MHz also a popular crystal net
- 80 metres 3.5 to 3.8MHz full or limited licence
- 3.525MHz to 3.625MHz is the Novice Band in Australia
- 3.5 to 3.550 MHz Morse section 3.550 to 3.7MHz voice section
- 3.7 to 3.75MHz is the US Novice Band
- 3.565MHz is a popular Novice listing and working channel 3.794 to 3.8MHz full licence only

40 metres - 7.0 to 7.3 MHz full licence only

7.1 to 7.15MHz is the American Novice Band
7.0 to 7.035MHz Morse segment
7.035 to 7.3MHz voice segment
7.05MHz national listening channel, some AM stations
but mainly Morse and LSB

30 metres - 10.1 - 10.15MHz full licence only

20 metres - 14.0 to 14.35MHz full licence only

14.0 to 14.1MHz, Morse, 14.1 to 14.35 MHz, voice 14.1 to 14.2MHz popular in Europe

14.2 to 14.35MHz popular in the USA

15 metres - 21.0 to 21.45MHz novice and full licence

21,125 to 21,2MHz is the Novice Band in Australia 21.0 to 21.15MHz is Morse

21.15 to 21.45MHz is voice

21.1 to 21.2MHz is the US Novice Band

In the US, voice is 21.25 to 21.45 MHz. Morse is 21.0 to

21.25MHz.

12 metres - 24.89 to 24.99MHz full licence only

10 metres - 28.0 to 29.7MHz novice and full licence

LIHE 40 Channel Australian Standard

28.1 to 28.6MHz is the Australian Novice Band 28.1 to 28.2 MHz is the US Novice Band 28.0 to 28.5MHz is the American Morse section 28.5 to 29.7MHz is the voice section 28.5MHz is the national calling frequency in Australia 28.55MHz is a popular international channel 28.6MHz is the international DX listening frequency 29.6MHz International FM calling channel, 29.3 to 29.5MHz used for communicating through the American and Russian Amateur Radio orbiting satellites.

A 23 channel system has been organised for modifying 11 metre rigs to 10 metres. The range is from 28.3 to 28.59MHz.

CHAN	FREQ	CHAN	FREQ	
1	28.30	13	.45	
2	.31	14	.46	
2 3	.32	15	.47	
4	.34	16	.49	
5	.35	17	.50	
6	.36	18	.51	
7	.37	19	.52	
8	.39	20	.54	
9	.40	21	.55	
10	.41	22	.56	
11	.42	22a	.57	
12	.44	23	.59	

6 metres - 50 to 50.15, 52 to 54MHz full or limited licence

2 metres - 144 to 148MHz full or limited licence

70cm - 420 to 450MHz full or limited licence

All bands above: full or limited licence

LICENCING

The Department of Communications conducts during the year examinations for Amateur Radio Operators Certificate of Proficiency at centres throughout Australia. There are four classes of licence:-

- Type 1 Amateur Operation Certificate of Proficiency (AOCP)-
- Type 2 Amateur Operators Limited Certificate of Proficiency (AOLCP)-
- Type 3 Novice Amateur Operators Certificate of Proficiency (NAOCP)-
- Type 4 Combined Limited/Novice

Requirements for this licencing are:

AOCP - Knowledge of radio communication, operation and design of receivers, transmitters, aerials and basic theory. Send and receive in plain language International Morse Code to a speed of 10 words per minute (WPM). The knowledge of the regulations covering operation of Amateur Radio Stations.

AOLCP - As above but no Morse Code examination required.

NAOCP - As per AOCP but of a lower standard with questions having multiple answers, Morse Code to 5WPM and regulations. This is a very easy exam to pass.

AOCP All amateur bands (see details elswhere). Maximum power input 400 W PEP, 150 W AM.

AOLCP All amateur bands above 52MHz. Maximum power input 400 W PEP, 150 W AM.

NAOCP 3.525 to 3.625MHz-

21.125 to 21.200MHz

28.100 to 28.600MHz

Maximum power input 30 W PEP, 10 W AM, crystal locked on transmit.

2m SIMPLEX CHANNEL NUMBERS AND **FREQUENCIES**

			WIA Bang Plan				
Channel No. Free		Frequency	Recommended use for	Chann	el No.	Frequency	
New	Old	MHz	specific frequencies	New	Old	MHz	
6425	-	146.425	Sec voice channel	7475		147.475	
6450	49	146.450	Pri voice channel	7500	70	147.500	
6475		146.475	Sec voice channel	7525	-	147.525	
6500	50	146.500	National call chan.	7550	71	147.550	
6525		146.525	Sec voice channel	7575	-	147.575	
6550	51	146.550	Pri voice channel	7600	72	147.600	
6575	-	146.575	Sec voice channel				
6600	52	146.60Q	National RTTY	Notes:			
7400	68	147.400	ATV liaison	1. Rec	ommer	nded use is for	
7425	-	147.425	National	2. Use	of 146	oooMHz (old	
7450	69	147.450	ATV/SSTV/FAX	asi	t interf	eres with the	

Channel No.		Frequency	WIA Band Plan Recommended use for
New	Old	MHz	specific frequencies
7475		147.475	SSTV/FAX liaison
7500	70	147.500	Not specific
7525	-	147.525	
7550	71	147.550	Micro. Net
7575	-	147.575	
7600	72	147.600	Data Net

- or guideline purposes only.
- channel 40) is not recommended satellite band.

AUSTRALIAN AMATEUR FREQUENCIES

1.800 to 1.860MHz	52.000 to 54.00MHz
3.500 to 3.700MHz	144.00 to 148.00MHz
3.794 to 3.800MHz	420.00 to 450.00MHz
7.000 to 7.300MHz	576.00 to 585.000MHz
10.100 to 10.150MHz	1240.00 to 1300.00MHz
14.000 to 14.350MHz	2300.00 to 2450.00MHz
18.068 to 18.168MHz	3300.00 to 3600.00MHz
21.000 to 21.450MHz	5650.00 to 5850.00MHz
24.890 to 24.990MHz	10000.00 to 10500.00MH:
28.000 to 29.700MHz	24000.00 to 24250.00MH

NOVICE FREQUENCIES

3.525 to 3.625MHz 21.125 to 21.200MHz 28.100 to 28.600MHz

AMATEUR REPEATERS & BEACONS

REPEATERS

NSW	CALL	CHAN	ı SITE	VICTORIA	CALL	CHAN	ı SITE	WESTERN AUSTRALIA	CALL	CHAN	I SITE
2m	SIGN	NO	02		SIGN	NO		2m	SIGN	NO	
Western Blue Mountains	VK2RDX	6650	Mt. Bindo	2m Shepparton	VK3RGV		Mt. Wombat	Bunbury	VK6RSW		Roelands
Nth. Coast. Coffs Harbour	VK2RCH	6650		Melbourne	VK3RML	6700	Mt. Dandenong	Perth	VK6RAP	6700	Roleystone
New England, Moree/Invereil	VK2RMI	6650		Ballarat	VK3RBA	6750	Mt. Bunningyong	Albany	VK6RAL	6700	Albany
Sydney RTTY	VK2RTY	6675		Latrobe Valley	VK3RLV	6800	Mt. Tassie	Perth	VK6RTH	6800	Tic Hill
Mid North Coast	VK2RPM	6700		Mildura	VK3RMA	6800	Mildura Airport	Albany	VK6RAA	6800	Mt. Barker
Central West, Orange	VK2RAO	6700		Mount Macedon	VK3RMM		Mt. Macedon	Bunbury	VK6RBY	6900	Mt. William
Mid South Coast, Ulladulla	VK2RMU		Milton	Swan Hill	VK3RSH	6900	Swan Hill	Tom Price	VK6RTP	6900	Mt. Tom Price
Central Coast - Gosford	VK2RAG	6725	Somersby	East Gippsland	VK3REG	6900	Mt. Sugarloaf	Perth	VK6RPD	6950	Wait Bently
Far South Coast - Bega	VK2RFS	6750	Mt. Mumbulla	Grampians	VK3RWZ	6950	Mt. William	Emergency	VK6REE	6975	RPTR Group Sec
New England – Tamworth	VK2RTM	6750		Geelong	VK3RGL		Mt. Anakie	Emergency	VK6REE	7000	RPTR Group Pri
Riverina – Wagga	VK2RWG			Wedonga	VK3RNE	7000	Mt. Big Ben	Wagin	VK6RAW	7000	Mt. Latham
Far North Coast, Lismore	VK2RIC	6800		South Gippsland	VK3RSG	7100		Kalgoorlie	VK6RAK	7000	Kalgoorlie
Sydney, South	VK2RLE	6800		Bendigo	VK3RCV	7150	Mt. Alexandria	Geraldton	VK6RGN	7000	Geraldton
Western Plains, Dubbo	VK2RCC	6800		Melbourne	VK3RTY	7350	Mt. Dandenong	Port Hedland	VK6RNW		Port Hedland
Murrumbidgee, Griffith	VK2RGF	6850		Melbourne	VK3REC	7175	Mt. Dandenong Buln-Buln	Perth	VK6RWC	7100	Lesmurdie
South Coast, Wollongong	VK2RAW VK2RGB			West Gippsland	VK3RWG	7225	buin-buin	6m			
New England, Gunnedah Sydney Northern Beaches	VK2RGB VK2RMB	6850 6875		70cm				Perth	VK6RSW	3200	Porth
Newcastle, Hunter Valley	VK2RAN	6900		Melbourne	VK3ROU	8225	Mt. Dandenong	reitir	VKONSVV	3200	1 61(11)
Western Plains, Condobolin	VK2RRT	6900		Melbourne	VK3RAD	8525	Burwood	70cm			
Sydney, Lower Nth. Shore	VK2RGR	6925		Wodonga	VK3RNU	8525		Perth	VK6RUF	8525	Roleystone
New England, Glen Innes	VK2RNE	6950		Melbourne	VK3RMU	8675					•
Sydney, Metro.	VK2RWI	7000		Mount Jackson	VK3RCU	9275	Mt. Macedon	TASMANIA			
Blue Mountains	VK2RBM			Portable	VK3RWI	8625	VIC WICEN	2m			
Sydney Eastern Suburbs	VK2ROT	7075		Grampians	VK3RWU	8075	Mt. William	Hobart	VK7RHT	6700	Mt. Wellington
Newcastle, L. Macquarie	VK2RTZ	7100		Gippsland	VK3RGU	8375	Carrajung	North West Coast	VK7RNW		Ulverstone
Central West - Parkes	VK2RWM			Shepparton	VK3RSU		Mt. Wombat	North East Coast	VK7RAA	7000	Mt. Barrow
Statewide Emergency	_	7125	WICEN Port. No 1	Geelong	VK3RBU	9575	Geelong	East Coast	VK7	6900	
Sydney WICEN	VK2RWS	7150	Chatswood								
Statewide Emergency		7175	WICEN Port. No. 2	6m				NORTHERN TERRITORY			
South Coast	VK2RSD	7200		Melbourne	VK3RMH		Hurstbridge	2m			
Sydney (SSTV)	VK2RST	7225		Melbourne	VK3RTN	3675	Mt. Dandenong	Alice Springs	VK8RCA	7000	Alice Springs
Sydney Upper Nth. Shore	VK2RNS	7250									
Wollongong – Coastal	VK2RST	7275						QUEENSLAND			
Southern Highlands, Mittagong		7350						2m			
Sydney - South West	VK2RLD	7375	Campbelltown	ACT				Gold Coast	VK4RGC	6700	Mt. Tamborine
				2m				Rockhampton	VK4RAR	6700	Rockhampton
				Canberra	VK1 RAC		Black Hill	Townsville	VK4RAT	6700	Mt. Stuart
				ACT	VK1 RGI	6950	Mt. Ginini	Bundaberg	VK4RBU	6800	Mt. Goonaneman
70 CM								North Coast	VK4RNC	6850	Mt. Nambour
Central Coast	VK2RAG	8075		70cm	VIVA DUIG	0505	O b	lpswich	VK4RAI	6900	Mt. Crosby
South Coast	VK2RUW			Canberra	VK1 RUC	8525	Canberra City	Gladstone	VK4RGB	6900	Caliope Range
Sydney, WICEN	VK2RWS	8275 8325						Cairns	VK4RCA	6950	Mt. Belleden Ker
Mid North Coast	VK2REE VK2RUT	8325						Brisbane	VK4RBN	7000	Mt. Glorious
Blue Mountains Sydney, Southern Suburbs	VK2RUH	8425						Mackay	VK4RMK VK4RBT	7000 7050	NE Mackay Mt. Cotton
Sydney, Western Suburbs	VK2RRS	8475						Brisbane	VK4RDD	7100	Toowoomba
Sydney, General	VK2RWI	8525						Darling Downs Bundaberg	VK4RBS	7250	Mt. Goonaneman
Newcastle, Coastal	VK2RUM							Mount Isa	VK4RMI	6800	Mt. Isa
Newcastle, Hunter Valley	VK2RAN	8675						Brisbane	VK4RQT	7300	Brisbane
Far North Coast, Lismore	VK2RSC	8675		SOUTH AUSTRALIA				Brisbarie	TICTIO!	, 555	Bridbario
North Wollongong	VK2RIL	8725		2m				70cm			
5 5	_			Mid North	VK5RMN	6700	The Bluff	North Coast	VK4RNC	8075	Mt. Nambour
				Adelaide	VK5RHO	6850		Gold Coast	VK4RGC	8225	Mt. Tamborine
				Adelaide	VK5RAD	7000		Brisbane	VK4RBC	8525	
				Mount Gambier	VK5RMG	6900	Mt. Gambier	Bundaberg	VK4RBU	8675	Mt. Goonaneman
Future VK2 development will in	nclude cha	nnels 92	275 to 9975.	Eyre Peninsula	VK5REP	6800	Cowell	Brisbane	VK4 R	8375	Brisbane South

BEACONS

10m BEACONS				NS		6m BEACON	6m BEACONS		
	CALL			CALL			CALL		
FREQ	SIGN	LOCATION	FREQ	SIGN		FREQ	SIGN	LOCATION	
28.2025	9J2B	Chicoutimi	50.005	H44HIR	Honiara	52.440	VK4RTL	Townsville	
28.205	DLOIGI	Mt. Predightstul	50.005	ZS5VHF	Natal, S. Africa	52.510	ZL2MHF	Mt. Climie	
28.2075	W4ESY	Englewood Fla.	50.008	JA2IGY	Mie	53.000	VK5VF	Mount Lofty	
28.210	3B8MS	Mauritius	50.020	GB3SIX	Anglesey			•	
28.2125	ZD9GI	Gough Island	50.020	HH2PR	Haiti	2m BEACO	IS .		
28.215	GB3SX	Crowborough	50.025	6Y5RC	Jamaica				
28.2175	VE2TEN	(reserved)	50.035	ZB2VHF	Gibraltar	144.400	VK4RTT	Mt. Mowbullan	
28.220	5B4CY	ZYYI	50.036	HC1 JX	Quito	144.420	VK2RSY	Sydney	
28.225	BE8AA	Lake Contwoyto	50.038	FY7THF	French Guiana	144.475	VK1 RTA	Canberra	
28.230	ZL2MHF	Upper Hut	50.040	WA6MHZ	San Diego	144.550	VK5RSE	Mt. Gambier	
28.235	VP9BA	Southampton	50.048	VE6ARC	Alberta	144.600	VK6RTT	Carnarvon	
28.2375	LA5TEN	Oslo	50.050	ZS3E	South Africa	144.700	VK3RTG	Vermont	
28.240	OA4CK	Lima	50.060	PY2AA	Sao Paulo	144.800	VK5VF	Mt. Lofty	
28.2425	A9XC	Hamala	50.065	KH6EQI	Pearl Harbour	144.900	VK7RTX	Ulverstone	
28.2425	ZS1 CTB	Cape Town	50.070	YV5ZZ	Caracas	145.000	VK6RTV	Perth	
28.2475	EA2HB	San Sebastian	50.075	VS6SIX	Hong Kong	70 0710			
28.2525	VE3TEN	Chicontini	50.080	Tľ2NA	Costa Rica	70cm BEAC	ONS		
28.2575	DKOTE	Konstanz	50.088	VE1 SIX	New Brunswick	432.420	VK2RSY	Cd	
28.260	VK5WI	Adelaide	50.103	FO8 DR	Tahiti	432.420	VK2RST VK6RRT	Sydney Carnaryon	
28.262	VK2RSY	Sydney	50.103	AH8A	American Somoa	432.440	VK4RBB	Brisbane	
28.264	VK6RTV	Perth	50.498	5B4CY	Cyprus	432.450	VK3RMB		
28.266	Z22JV	Salisbury	51.020	ZL1 UHF	Auckland	432.450	VK3NIVID	Mt. Bunningyong	
28.266	VK6RTW	Albany	52.013	P29SIX	New Guinea	23cm BEAC	ONS		
28.270	VK4RTC	Townsville	52.150	VK5KK	Arthurton	23CIII DEAC	0143		
28.270	ZS6PW	Pretoria	52.200	VK8VF	Darwin	1266.570	VK2RUG	Central Coast	
28.2725	TU2ABJ	Abidjan	52.250	ZL2VHM	Palmerston North	1296.420	VK2RSY	Sydney	
28.275	VE3TEN	Ottawa	52.300	VK6RTV	Perth	1250.425	***************************************	Gyancy	
28.2775	DFOAAB	Luetjenberg	52.320	VK6RTT	Carnarvon				
28.280	YV5AYV	Caracas	52.325	VK2RHV	Newcastle				
28.2825	W9	(reserved qrp)	52.330	VK3RGG	Geelong				
28.285	VP8ADE	Adelaide Island	52.350	VK6RTU	Kalgoorlie				
28.2875	W8	Tuckasagee N.C.	52.370	VK7RST	Hobart				
28.290	VS6HK	Cape D'Aquilar	52.400	VK7RNT	Launceston				
28.295	VU2BCN	Bangalore	52.420	VK2RSY	Sydney				
28.315	ZS6DN	Johannesburg	52.425	VK2RGB	Gunnedah				
28.888	W6IRT	N. Hollywood Cal.	52.435	VK3RMV	Hamilton				

EVERYTHING YOU EVER WANTED TO

By now, many amateurs will have heard people talking about 'Packet Radio'. Most people, amateurs included, haven't got a clue what this means! Let's have a look a this new communications method - and what it means to amateur radio.

Most amateurs are familiar with radio teletype (RTTY). It's an adaptation of a commercial system, using two tones to represent two digital states. Using various combinations of these tones to represent characters, communication is possible betweeen two stations using equipment capable of decoding the tones.

RTTY was designed as a slow speed, narrow band facility compatible with electro-mechanical printers of the time.
Thus channel throughput was agonisingly slow. The RTTY code is efficient, but can be corrupted by atmospherics, QSB (fading), multiple path reception, and so on.
Packet radio is similar to RTTY in many respects, except for a few important differences.

While Packet Radio is a digitally endoded radio signal like RTTY, it incoporates error detection and hand-shaking to ensure date integrity. A computed value called 'Frame Check Sequence' is sent along with each transmission which allows the receiving station to check for errors. The receiving station computes its own FCS of the received data, compares this value to the FCS value sent in the packet and, if identical, issues an acknowledgement return sealed to COM. packet (ACK). If different, a "not acknowledged" or NAk packet is returned. The transmitting station then re-sends the previous packet. This procedure continues until the acknowledgement is received or the link times out on retry (a limit set by the operator). If the receiving station does not

Unfortunately, there is already disagreement about HOW the packets should be constructed. Two main systems of packet radio have been established and , like VHS Beta video tape, the two are similar, but aren't compatible! The only difference is in the addressing schemes. in the addressing schemes.

Here in Australia, most Package Radio work has been based on the research and development work of the Vancouver (Canada) Amateur Digital Communications Group. This protocol, called the 'VADCG' protocol is the one used by most amateurs in Sydney, Melbourne and Brisbane, where Packeteers have set up groups to further interest in Packet Radio.

The alternative system, recently adopted by the ARRL as 'the international standard', is the AX-25 protocol. Needless to say, the ARRL's 'declaration' has not endeared itself to the VADCG who have said they will continue using their protocol because of its inherent advantages.

The VADCG group have evolved the current V2 protocol from the earlier (original) development. This protocol has been designed on a 'modular' basis to implement the software 'layering' structures recommended for computer software 'layering' structures recommended for computer communications. As part of this structure, network address headers are implemented in the address field. The design philosophy has endeavoured to keep addressing overheads to a minimum. The address field itself is derived from the source and destination callsigns, and consists of hexadecimal codes. This allows a specialised function of the protocol controllers called 'selective receive' to be used. This feature greatly features CPU loading: it allows very high speed operation in addition the terminal interface very high speed operation in addition the terminal interface

SYNC	_	ADDRESS	CONTROL	INFORMATION	FCS	FLAG
(2 bytes)		(6 bytes)	(1 byte)	(Up to 200 bytes)	(2 bytes)	(1 byte)

Fig 1: Construction of a 'packet' using the VADCG V2 or AX-25 system. The difference between the systems basically lies in the way the packets are addressed.

send a special acknowledgement signal within a certain period of time, the transmitting station sends the packet again - and keeps doing so until the acknowledgement is received.

Thus Packet Radio is virtually guaranteed error -free. The other huge advantage of Packet Radio is that it is extremely efficient of spectrum space. All users share a common efficient or spectrum space. All users share a common frequency - and because there can be quite a number of users, that means that all of them are freeing up other spectrum space which might have been tied up before with inefficient modes such as systems employing continuous carriers or pilot tones for synchronisation which limit a radio channel to one user at a time. Because of the "bursty" nature of packet transmission, over ten pairs of stations may be "linked" and "chatting" over a single VHF FM

A packet, quite simply, is a collection of ASCII data, information, etc, which can be communicated - by radio, by phone lines, etc. Inside the 'packet' is the message or information to be sent, together with a number of 'fields' of information which identifies the source and destination, addresses, network control parameters and protocol control codes.

The information contained in the packet can be virtually anything: Data, text, program listings, even digitised speech . . . anything that can be expressed in digital form can be transmitted.

can be transmitted.

'Packet' technology has been around for some time now in computer usage. Where a number of computers are 'networked' together, they usually communicate by sending 'packets' of data between each other. In Packet Radio, the same thing happens. Each packet is constructed to be unambiguous, and within the same system, all packets constructed in the same way.

structure allows 'host level programs to operate packet controller in a simple fashion. Conversely, the AX25 group (backed by the ARRL group) maintain that it was the AX25 protocol that encouraged the rapid expansion of packet radio with the provision of 'digipeating' functions in each unit and amateur callsigns in each packet. This made 'reading the mail' so much easier. The publishing of the standard backed by the ARRL has enabled commercial manufacturers to produce packet controllers thereby manufacturers to produce packet controllers, thereby opening this interesting mode to all amateurs. It would appear that the AX-25 lobby has support in England as well as America.

And when the amateur packet radio satellite is launched (later this year) it will carry the AX-25 mode. 'No problem', say the VADCG group. 'We can live with both systems. We'll simply include a Gateway node in the system which will convert protocols. Then we'll have the best of both worlds.' Who is right? Only time will tell! It appears that both systems will continue for some lime to come! systems will continue for some time to come!

Figure 1 shows the construction of the packet. (Both protocols use the same basic construction). Each section of the packet (which may be up to 200 bytes long) has a specific function. Let's look at them:

SYNC: Used for synchronising the receiving equipment before sending the FLAG following. It is only used for the first packet in a group of packets. 16 bits of alternating zeros and ones for synchronisation.

FLAG: A special 8 bit character (binary 011111110 or 7E hex). It marks the beginning and the end of the packet. If another packet is sent immediately after this packet, the second packet may use the ending flag of the first packet as its beginning flag.

KNOW ABOUT PACKET RADIO...

ADDRESS: A 6 byte field consisting of 2 bytes each for source address, destination address and network address. As the source and destination addresses are derived from each individual callsign, the resultant fields are unique.

CONTROL: Used to describe the type of packet. An 8 bit field which also contains acknowledgement information which ensures no packets are missed or out of order.

INFORMATION: The message being sent. It can be up to 200 bytes long. It the message is over 200 bytes, the remainder will be sent in the next packet(s).

FRAME CHECK SEQUENCE: Ensures that no bits are incorrect in the packet. It is 16 bits long.

FLAG: End flag, identical to start flag (can also be start flag of next frame).

What's in a Packet Radio Station?
To build up a packet station, all you need are three basic ingredients:

ingredients: (1) A user terminal

2) A Terminal Node Controller

(3) An amateur transceiver on the band required.

The terminal can be simple or complex: anything from a video terminal and keyboard (perhaps a printer too) right through to a full scale computer installation. Whatever is chosen needs only to have an RS232/V24 compatible link to the TNC. However, the terminal computer must have its own communications program.

If the above all sounds pretty complex, it is: especially to the computer novice! But the Packeteers have developed some pretty smart equipment to take care of all the 'housekeeping'. The TNC is essentially two main parts of one piece of equipment: the hardware and the software. The hardware not only switches the transceiver, it generates and encodes the packets to be transmitted, monitors the channel for packets addressed to this station, accepts input from keyboard and outputs to the screen or printer.

In addition, it also houses the software.
The TNC can be regarded as a micro in itself, In fact, many packeteers use their existing micros to perform many of the tasks above, having special software written to do it.
The software is written in assembly language for speed (BASIC and similar languages are far, far too slow).
This means that every computer type must have its own

software written to perform the functions, while maintaining the same protocol so that it can work with different types of computers. The problem of having to provide a unique packet program specially written for every type of computer led the development of the TNC - a smart peripheral controller that removed the basic 'housekeeping' chores from the personal computer.

The TNC is designed around EPROMS so that upgrades (and there have been many of them) are simple to accommodate. When the TNC has received data from the computer or terminal, it first converts it to a packet by attaching the destination and control information header, and the tail containing the result of the FCS calculation for error detection, plus the beginning/end flags. It is then sent via an RS-232C serial port to a modem which produces the audio frequency shift keyed (AFSK) modulation by putting one of two tones corresponding to a mark or space into the microphone input socket.

The packet is then sent out on the air, ready for the station to which it is addressed to respond to it.

Pretty self explanatory, really! The station obviously must be capable of operation on the frequency required - most development is on 2 metres - and the transmitter/receiver or transceiver must be capable of external switching.

Already repeaters for Packet Radio ('Digipeaters') are operating in Sydney and Melbourne. A frequency of operation in the 2 metre band has yet to be decided, but is likely to be 147.500MHz or 147.600MHz (perhaps both). As would be expected in Australia, these run the VADGC protocol.

As would be expected if Australia, these run the value protocol.

On the drawing board (as soon as licencing changes allow it) will be high speed inter-city links using linked digipeaters. And when the PACSAT satellite is launched (proposed this year) satellite Packet will become a reality. This will require the establishment of a Gateway Node, and at the same time Gateway Nodes for other Packet Radio uses such as HF links, bulletin board systems, RTTY or AMTOR link nodes, etc are being planned.

Further into the future, Packet Radio will allow diversification into such areas as:
Satellite network technologies.
Satellite data communication.
Local Digital Switching Networks.
Advanced Digital Signal processing
Modulation and speech coding techniques (yes, packet speech)
Specialised digital graphic techniques.



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Don't want those speaker wires to get away? Capture them with this 8 terminal speaker wire connector! PCB



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Retractable Snap Blade

Knife blade always blunt? Well, we've solved the dilemma! The knife that's never blunt. Just snap of the end of the blade and it's sharp again (tool provided!) Made of sturdy plastic with 18mm locking retractable

On card with spare blades.



Plug-in Fuses

Much better than the old ones. As used in a lot of modern Japanese cars, these plug-in fuses are colour coded so you can tell at a glance what rating they are.



Card of 5 fuses: 5, 10, 15, 20 & 25A Cat S-4488

Tape Head Demagnetiser

Tapes sounding old - even the new ones? Perhaps your heads need demagnetising! This fantastic cassette with inbuilt oscillator circuitry slips straight into



your machine and demagnetises the heads. Save your tapes before they get any worse and stop ruining your new ones. Amazing value! Cat C-7224

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mounting and one for external panel mounting (complete with door!). Complete with battery connections. PCB Mounting: Cat P-6220. Cat P-6220..... Panel Mounting: \$395

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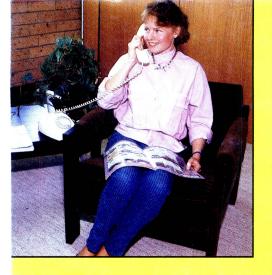
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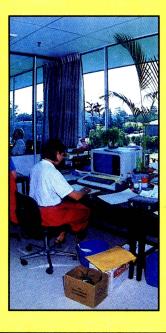
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